

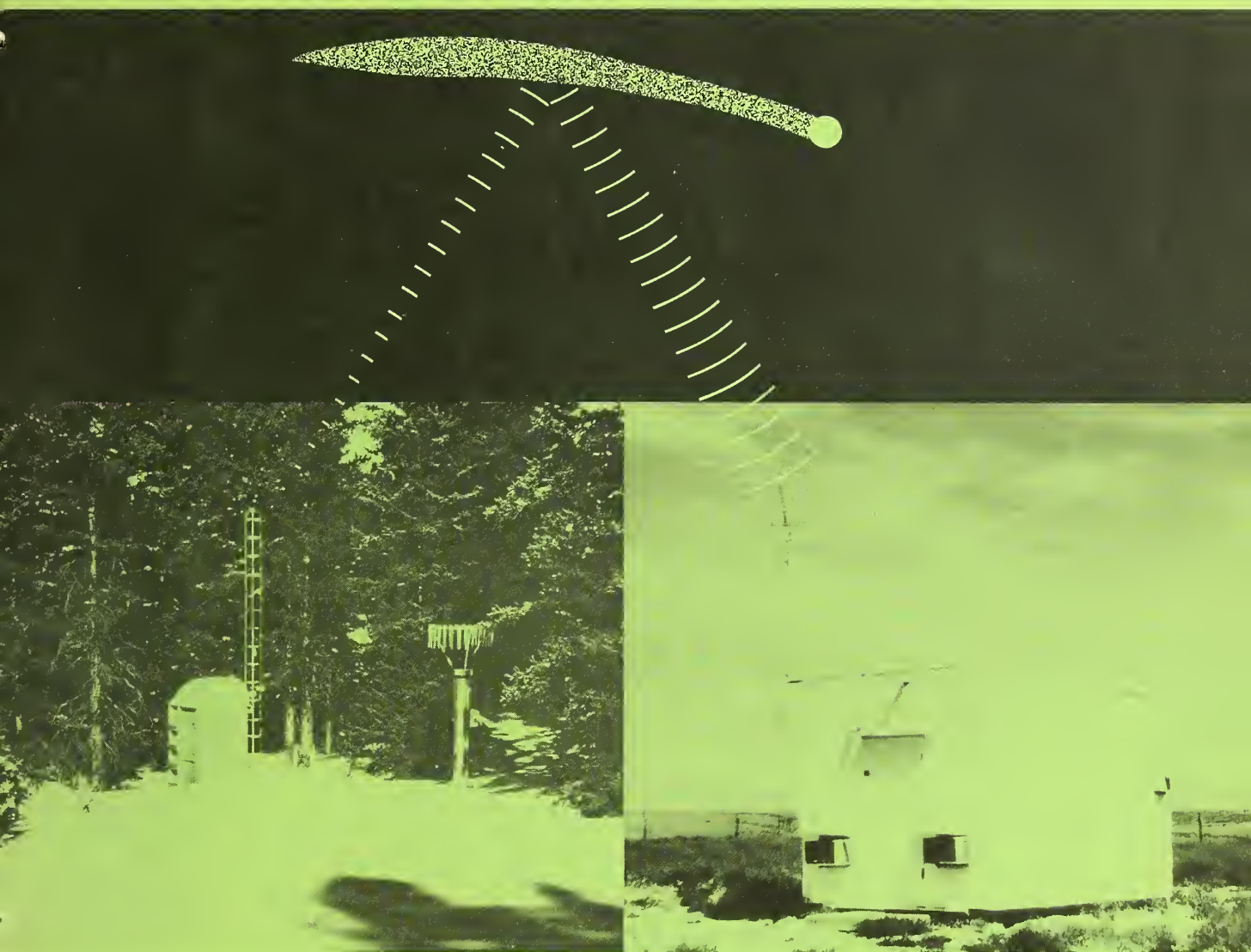
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# **WATER SUPPLY OUTLOOK FOR WASHINGTON**



**U. S. DEPARTMENT of AGRICULTURE ★ SOIL CONSERVATION SERVICE**

Collaborating with

DEPARTMENT OF ECOLOGY STATE OF WASHINGTON

AS OF  
**MAY 1, 1978**

Data included in this report were obtained by the agencies named above in cooperation with Federal, State and private organizations listed inside the back cover of this report.

## TO RECIPIENTS OF WATER SUPPLY OUTLOOK REPORTS:

Most of the usable water in western states originates as mountain snowfall. This snowfall accumulates during the winter and spring, several months before the snow melts and appears as streamflow. Since the runoff from precipitation as snow is delayed, estimates of snowmelt runoff can be made well in advance of its occurrence. Streamflow forecasts published in this report are based principally on a measurement of the water equivalent of the mountain snowpack.

Forecasts become more accurate as more of the data affecting runoff are measured. All forecasts assume that climatic factors during the remainder of the snow accumulation and melt season will interact with a resultant average effect on runoff. Early season forecasts are therefore subject to a greater change than those made on later dates.

The snow course measurement is obtained by sampling snow depth and water equivalent at surveyed and marked locations in mountain areas. A total of about ten samples are taken at each location. The average of these are reported as snow depth and water equivalent. These measurements are repeated in the same location near the same dates each year.

Snow surveys are made monthly or semi-monthly from January 1 through June 1 in most states. There are about 1900 snow courses in Western United States and in the Columbia Basin in British Columbia. Networks of automatic snow water equivalent and related data sensing devices, along with radio telemetry are expanding and will provide a continuous record of snow water and other parameters at key locations.

Detailed data on snow course and soil moisture measurements are presented in state and local reports. Other data on reservoir storage, summaries of precipitation, current streamflow, and soil moisture conditions at valley elevations are also included. The report for Western United States presents a broad picture of water supply outlook conditions, including selected streamflow forecasts, summary of snow accumulation to date, and storage in larger reservoirs.

Snow survey and soil moisture data for the period of record are published by the Soil Conservation Service by states about every five years. Data for the current year is summarized in a West-wide basic data summary and published about October 1 of each year.

*COVER PHOTO: SOME OF THE DATA IN THIS REPORT HAVE BEEN RECEIVED THROUGH THE SOIL CONSERVATION SERVICE'S NEW SNOTEL SYSTEM WHICH TRANSMITS INFORMATION VIA THE SPACE AGED METEOR BURST METHOD FROM DATA SITES TO MASTER STATIONS LIKE THESE.*

### PUBLISHED BY SOIL CONSERVATION SERVICE

The Soil Conservation Service publishes reports following the principal snow survey dates from January 1 through June 1 in cooperation with state water administrators, agricultural experiment stations and others. Copies of the reports for Western United States and all state reports may be obtained from Soil Conservation Service, West Technical Service Center, Room 510, 511 N.W. Broadway, Portland, Oregon 97209.

Copies of state and local reports may also be obtained from state offices of the Soil Conservation Service in the following states:

STATE	ADDRESS
Alaska	Room 129, 2221 East Northern Lights Blvd., Anchorage, Alaska 99504
Arizona	Room 3008, Federal Building, Phoenix, Arizona 85025
Colorado (N. Mex.)	P. O. Box 17107, Denver, Colorado 80217
Idaho	Room 345, 304 N. 8th. St., Boise, Idaho 83702
Montana	P. O. Box 98, Bozeman, Montana 59715
Nevada	P. O. Box 4850, Reno Nevada 89505
Oregon	1220 S.W. Third Ave., Portland, Oregon 97204
Utah	4012 Federal Bldg., 125 South State St., Salt Lake City, Utah 84138
Washington	360 U.S. Court House, Spokane, Washington 99201
Wyoming	P. O. Box 2440, Casper, Wyoming 82602

### PUBLISHED BY OTHER AGENCIES

Water Supply Outlook reports prepared by other agencies include a report for California by the Water Supply Forecast and Snow Surveys Unit, California Department of Water Resources, P.O. Box 388, Sacramento, California 95802 --- for British Columbia by the Ministry of the Environment, Water Investigations Branch, Parliament Buildings, Victoria, British Columbia V8V 1X5 --- for Yukon Territory by the Department of Indian and Northern Affairs, Northern Operations Branch, 200 Range Road, Whitehorse, Yukon Territory Y1A 3V1 --- and for Alberta, Saskatchewan, and N.W.T. by the Water Survey of Canada, Inland Waters Branch, 110-12 Avenue S.W., Calgary, Alberta T3C 1A6.



# ***WATER SUPPLY OUTLOOK FOR WASHINGTON***

and  
FEDERAL - STATE - PRIVATE COOPERATIVE SNOW SURVEYS

*Issued by*

**R.M. DAVIS**

ADMINISTRATOR  
SOIL CONSERVATION SERVICE  
WASHINGTON, D C



*Released by*

**GALEN S. BRIDGE**

STATE CONSERVATIONIST  
SOIL CONSERVATION SERVICE  
SPOKANE, WASHINGTON

*In Cooperation with*

**WILBUR G. HALLAUER**

DIRECTOR  
DEPARTMENT OF ECOLOGY  
STATE OF WASHINGTON



*Report prepared by*

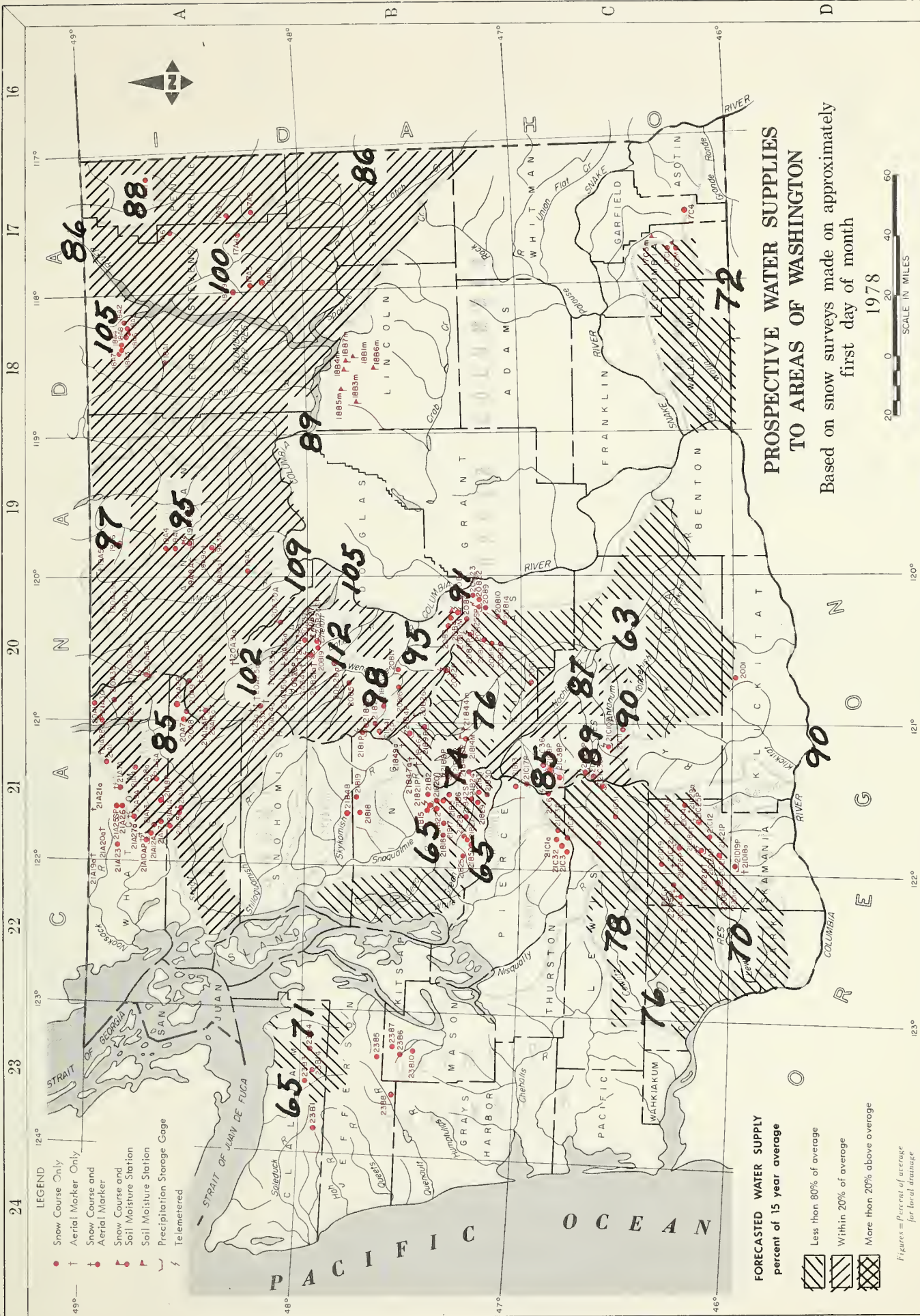
**ROBERT T. DAVIS, Snow Survey Supervisor  
and**

**NORINE P. KENT, Statistical Assistant**

SOIL CONSERVATION SERVICE  
360 U.S. COURTHOUSE  
SPOKANE, WASHINGTON 99201



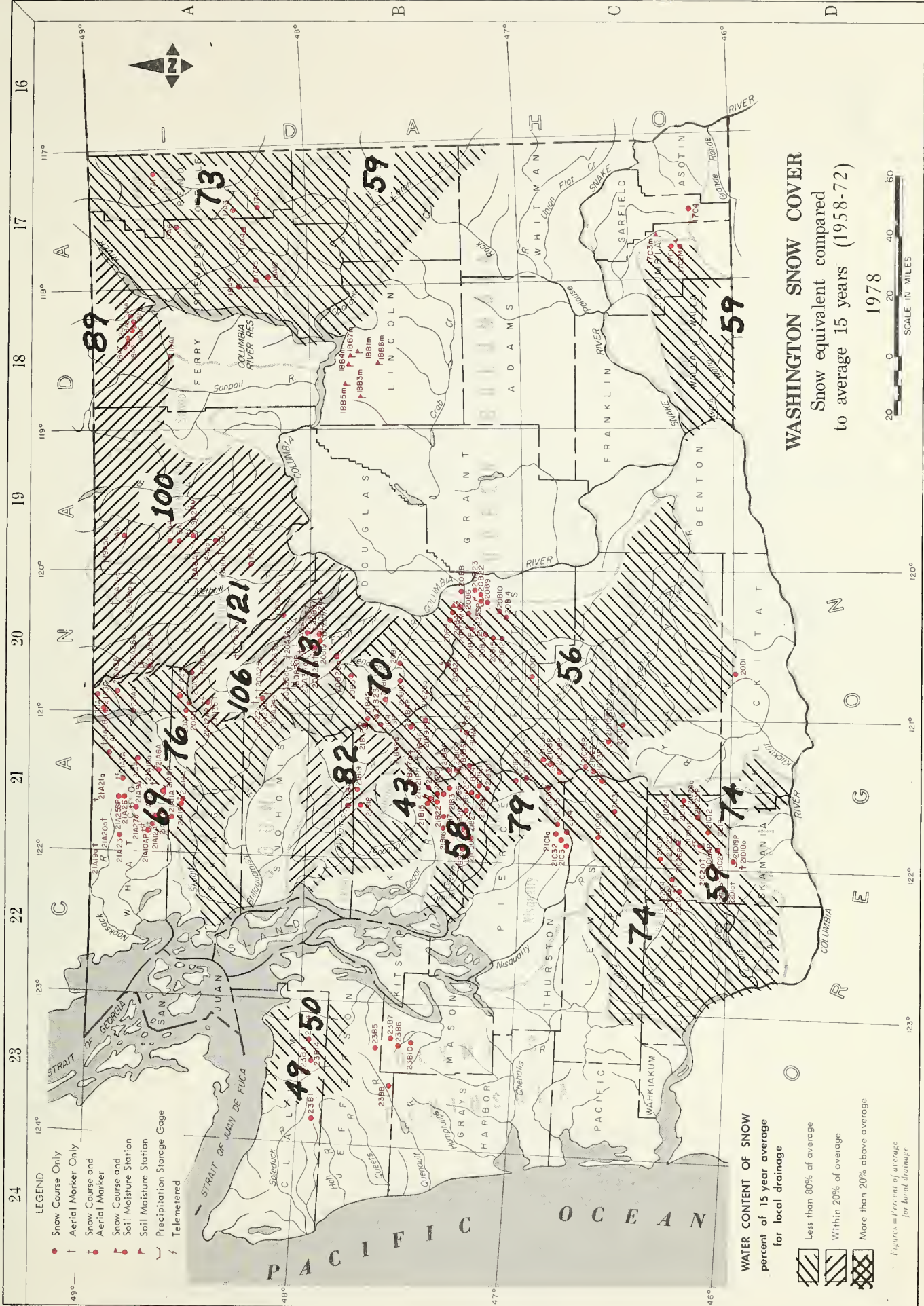




INDEX to WASHINGTON SNOW COURSES, SOIL MOISTURE STATIONS AND PRECIPITATION STORAGE GAGES

UPPER COLUMBIA DRAINAGE										LOWER COLUMBIA DRAINAGE										OLYMPIC PENINSULA										
NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.	NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.	NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.	NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.							
Pend Oreille River																														
er Mountain	1742	7	31N	43E	5250	Wenatchee River (continued)										Lewis River (continued)										Skagit River				
chgrass Meadow	1741	24	37N	44E	5000	Trough #2	20825SP	10	20N	20E	5310	Colockum Creek	20822	11	20N	20E	5300	Olvidle Meadow	21C28a	21	9N	10E	5600	Beaver Creek Trail	21A4	35	39N	12E	2200	
Winchester Creek	1743	30	33N	43E	2970	Colockum Creek Upper	20822	11	20N	20E	5300	Colockum Creek Lower	20823	1	20N	20E	4300	Long Pine Shelter	21C26P	8	9N	7E	3800	Beaver Pass	21A1	9	39N	12E	3680	
Kettle River																														
Boulder Road	1842	36	39N	36E	1450	Squitchuck Creek										Stemilt Creek										Cowlitz River				
Butte Creek	1843	28	39N	35E	4070	Beehive Springs	2083	12	21N	19E	4400	Scout-A-Vista	2084	18	21N	20E	3400	Smith Creek Road	22C1a	35	9N	5E	4400	Freezout Meadows New	20A3B	8	40N	16E	5000	
Cabin Creek	1848	5	38N	36E	3170	Jump-Off	2088	34	21N	20E	4450	Stemilt Slide	2086	30	21N	20E	5000	Spencer Meadow	21C20a	16	7N	34E	3400	Freezout Creek Trail	20A1	14	40N	14E	3500	
Goat Creek	1844	26	39N	35E	3595	Stemilt Slide	2086	30	21N	20E	5000	Upper Wheeler	2087PM	30	21N	20E	4400	Table Mountain	21C13AP	14	7N	8E	4250	Granite Creek	21A29	25	36N	16E	5000	
Snaw Gaps Creek	1845	3	38N	36E	2150	Upper Wheeler	2087PM	30	21N	20E	4400	Crab Creek	1884m	32	27N	34E	2440	Timbered Peak	21C124a	20	9N	9E	4200	New Hozomeen Lake	20A8	29	36N	14E	1900	
Summit G. S.	1847	20	39N	35E	4600	Creston-Kunz	1884m	32	27N	34E	2440	Crab Creek	1885m	32	27N	31E	2750	Crab Creek	1886m	24	25N	32E	2290	Thunder Basin	21A30	10	35N	14E	4200	
Colville River																														
Baird	1746	19	36N	42E	3215	Jack Woods	1885m	32	27N	31E	2750	Crab Creek	1886m	24	25N	32E	2290	Crab Creek	1887m	24	25N	32E	2290	Baker River	21A27a	1	37N	7E	4900	
Carlson	1849	34	32N	38E	2885	Krause	1884m	21	27N	33E	2420	Crab Creek	1887m	24	25N	32E	2290	Crab Creek	1888m	24	25N	32E	2290	Dock Butte	21A1A	8	36N	BE	3800	
Chelwah	1744	11	32N	41E	4925	Sheriffles	1885m	17	27N	33E	2420	Crab Creek	1889m	24	25N	32E	2290	Crab Creek	1890m	24	25N	32E	2290	Easy Pass	21A7A	19	39N	11E	5400	
Stranger Mountain	1745	26	31N	38E	4890	Sherman	1887m	24	27N	33E	2440	Crab Creek	1890m	24	25N	32E	2290	Crab Creek	1891m	24	25N	32E	2290	Jasper Pass	21A6A	17	38N	11E	5400	
Togo	18410	6	29N	38E	3370	Wheatridge	1886m	24	25N	32E	2290	Crab Creek	1892m	24	25N	32E	2290	Crab Creek	1893m	24	25N	32E	2290	Kono Kulshan	21A17	31	37N	9E	800	
Sanpoil River																														
Sherman Creek Pass	1841	19	36N	35E	5350	Yakima River										Nooksack River										Nisqually River				
Clark	1948a	2	36N	23E	7000	Ahtanum R. S.	21C11	24	12N	14E	3100	Crab Creek	1894m	24	25N	32E	2290	Crab Creek	1895m	24	25N	32E	2290	Bald Mountain	21A18a	7	40N	7E	4400	
Muckamuck	1949a	30	37N	24E	5700	Big Boulder Creek	21B9P	35	23N	14E	3200	Crab Creek	1896m	24	25N	32E	2290	Crab Creek	1897m	24	25N	32E	2290	Canyon	21A20a	20	40N	8E	5100	
Mutton Creek No. 1	1941	19	37N	24E	6000	Bumping Lake New	21C36	13	15N	12E	4600	Crab Creek	1898m	24	25N	32E	2290	Crab Creek	1899m	24	25N	32E	2290	Glacier Creek	21A23	9-10	38N	7E	3700	
Paysayten	20A28a	32	40N	18E	4300	Bumping Ridge	21C38P	13	15N	12E	4600	Crab Creek	1899m	24	25N	32E	2290	Crab Creek	1900m	24	25N	32E	2290	Panorama New	21A26	17	39N	9E	4300	
Rusty Creek	19A3P	18	35N	24E	4000	Colockum Pass	2089	25	20N	20E	5370	Crab Creek	1901m	24	25N	32E	2290	Crab Creek	1902m	24	25N	32E	2290	Panorama Snow Pillow	21A25SP	17	39N	9E	4300	
Salmon Meadows	19A2PM	33	37N	24E	4500	Cooke Creek	20810	17	19N	20E	4123	Crab Creek	1903m	24	25N	32E	2290	Crab Creek	1904m	24	25N	32E	2290	Twin Lakes	21A21a	16	40N	9E	5200	
Starvation Mtn.	19A10a	15	35N	23E	6750	Onney Flat	21B44m	5	20N	14E	2200	Crab Creek	1905m	24	25N	32E	2290	Crab Creek	1906m	24	25N	32E	2290							
Touts Coulee	19A6	30	39N	25E	2845	Fish Lake	21B4P	28	24N	14E	3371	Crab Creek	1907m	24	25N	32E	2290	Crab Creek	1908m	24	25N	32E	2290							
Methow River																														
811ly Goat Pass	20A10a	10	38N	20E	6400	Greene Lake	21C10P	3	12N	13E	6000	Crab Creek	1909m	24	25N	32E	2290	Crab Creek	1910m	24	25N	32E	2290							
Oallar Match	20A29a	8	39N	20E	7000	Joe Lake	20812	34	20N	19E	2930	Crab Creek	1911m	24	25N	32E	2290	Crab Creek	1912m	24	25N	32E	2290							
Harris Pass	20A5AP	7	37N	18E	6500	High Creek	20813	4	19N	19E	3875	Crab Creek	1913m	24	25N	32E	2290	Crab Creek	1914m	24	25N	32E	2290							
Horseshoe Basin	19A5a	15	40N	23E	7000	Lake Cle Elum	21B46a	22	23N	12E	4624	Crab Creek	1915m	24	25N	32E	2290	Crab Creek	1916m	24	25N	32E	2290							
Loup Loup	19A7	36	34N	23E	4650	Lemah Creek	21B47a	7	23N	13E	3327	Crab Creek	1917m	24	25N	32E	2290	Crab Creek	1918m	24	25N	32E	2290							
Chelon Lake Basin																														
Cloudy Pass	20A22a	12	31N	15E	6500	Manastash	20C1	24	17N	16E	5355	Crab Creek	1919m	24	25N	32E	2290	Crab Creek	1920m	24	25N	32E	2290							
Greenwood Flat	20A25a	3	31N	10E	3510	Nanum	20813	4	19N	19E	3875	Crab Creek	1921m	24	25N	32E	2290	Crab Creek	1922m	24	25N	32E	2290							
Little Meadows	20A24a	8	31N	10E	3275	Trail Creek	20814	20	19N	20E	3360	Crab Creek	1923m	24	25N	32E	2290	Crab Creek	1924m	24	25N	32E	2290							
Lynn Lake	20A24a	18	31N	10E	3500	Van Epps Pass	20826a	16	23N	15E	5925	Crab Creek	1925m	24	25N	32E	2290	Crab Creek	1926m	24	25N	32E	2290							
Park Creek Flat	20A13a	19	34N	10E	2220	Walters Flat	20815	22	20N	19E	3560	Crab Creek	1927m	24	25N	32E	2290	Crab Creek	1928m	24	25N	32E	2290							
Park Creek Ridge	20A12a	18	34N	10E	4600	White Pass (East Side)	21C28P	2	13N	11E	4500	Crab Creek	1929m	24	25N	32E	2290	Crab Creek	1930m	24	25N	32E	2290							
Petrsons	20A16a	3	34N	17E	3730	White Pass (Leach Lake)	21C27	1	13N	11E	4500	Crab Creek	1931m	24	25N	32E	2290	Crab Creek	1932m	24	25N	32E	2290							
Rainy Pass	20A9	21	35N	17E	4780	Lower Columbia Drainage										Dungeness River										Morse Creek				
Safety Harbor	20A30a	32	31N	20E	6300	Asotin Creek										Green River										Cox Valley				
War Creek Pass	20A31a	34	33N	18E	6300	Spruce Springs	17C4	9	8N	40E	5700	Crab Creek	1933m	24	25N	32E	2290	Crab Creek	1934m	24	25N	32E	2290							
Entiat River																														
8lue Creek G.S.	20B28a	19	28N	18E	5425	Mill Creek										Cedar River										Skokomish River				
Brief	20B19	34	28N	19E	1600	Couse	17C3m	2	9N	40E	3370	Crab Creek	1935m	24	25N	32E	2290	Crab Creek	1936m	24	25N	32E	2290							
Entiat Meadows	20B28a	28	31N	17E	4540	Homestead	17C1	11	9N	40E	4030	Crab Creek	1937m	24	25N	32E	2290	Crab Creek	1938m	24	25N	32E	2290							
Entiat River Trail	20B34a	12	29N	17E	3325	Martin Springs (Helmers SW)	17C2M	23	9N	40E	4400	Crab Creek	1939m	24	25N	32E	2290	Crab Creek	1940m	24	25N	32E	2290							
Four Mile Ridge	20B27a	17	30N	19E	6800	Klickitat River										Solieduck River										Black and White				
Pope Ridge	20B20P	22	23N	18E	3540	Satus Pass	2001	21	6N	17E	4030	Crab Creek	1941m	24	25N	32E	2290	Crab Creek	1942m	24	25N	32E	2290							
Pope Ridge Snow Pillow	20B24SP	22	23N	18E	3540	White Salmon River										Oer Lake										Black and White				
8lue Ridge	20A32a	34	30N	18E	6725	Cultus Creek	21C12	35	7N	BE	4000	Crab Creek	1943m	24	25N	32E	2290	Crab Creek	1944m	24	25N	32E	2290							
dy Pass	20A37	20	29N	19E	6200	Lewis River										Alpine Meadow										Four Stream				
W Brushy	20A35a	21	30N	17E	3910	Cultus Creek	21C12	35	7N	BE	4000	Crab Creek	1945m	24	25N	32E	2290	Crab Creek	1946m	24	25N	32E	2290							
my Creek	20B21a	10	28N	18E	4900	Cultus Creek	21C12	35	7N	BE	4000	Crab Creek	1947m	24	25N	32E	2290	Crab Creek	1948m	24	25N	32E	2290							
Wenatchee River																														
he-Mill Creek	21B23	7	26N	15E	3170	Lewis River										Alpine Meadow										Four Stream				
he-Mill Creek (New)	21B41SP	13	26N	14E	3240	Cultus Creek	21C12	35	7N	BE	4000	Crab Creek	1949m	24	25N	32E	2290	Crab Creek	1950m	24	25N	32E	2290							
Wentworth R. S.	20B2P	23	25N	17E	4270	Cultus Creek	21C12	35	7N	BE	4000	Crab Creek	1951m	24	25N	32E	2290	Crab Creek	1952m	24	25N	32E	2290							
Wentworth R. S.	20B16	4	25N	17E	1810	Cultus Creek	21C12	35	7N	BE	4000	Crab Creek	1953m	24	25N	32E	2290	Crab Creek	1954m	24	25N	32E	2290							
Wentworth R. S.	20B17	1	24N	17E	1127	Cultus Creek	21C12	35	7N	BE	4000	Crab Creek	1955m	24	25N	32E	2290	Crab Creek	1956m	24	25N	32E	2290							
Wentworth R. S.	20B18	4	26N	16E	2140	Cultus Creek	21C12	35	7N	BE	4000	Crab Creek	1957m	24	25N	32E	2290	Crab Creek	1958m	24	25N	32E	2290							
Wentworth R. S.	21B15	12	26N	19E	3700	Cultus Creek	21C12	35	7N	BE	4000	Crab Creek	1959m	24	25N	32E	2290	Crab Creek	1960m	24	25N	32E	2290							
Wentworth R. S.	21B16	14	26N	13E	4070	Cultus Creek	21C12	35	7N	BE	4000	Crab Creek	1961m	24	25N	32E	2290	Crab Creek	1962m	24	25N	32E	2290							



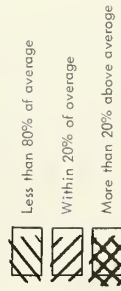


WASHINGTON SNOW COVER  
Snow equivalent compared  
to average 15 years (1958-72)

1978



WATER CONTENT OF SNOW  
percent of 15 year average  
for local drainage



Figures = Percent of average  
for local drainage

INDEX to WASHINGTON SNOW COURSES, SOIL MOISTURE STATIONS AND PRECIPITATION STORAGE GAGES

NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.	NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.	NAME	NUMBER	SEC.	TWP.	RANGE	ELEV.				
UPPER COLUMBIA DRAINAGE																					
Pend Oreille River																					
Boyer Mountain	17A2	7	31N	43E	5250	Wenatchee River (continued)												Lewis River (continued)			
Bunchgrass Meadow	17A1	24	37N	44E	5000	Trough #2												Oxide Meadow			
Winchester Creek	17A3	30	33N	43E	2970	Colockum Creek Upper												Grand Meadow			
Kettle River																		Long Pine Shelter			
Boulder Road	18A2	36	39N	36E	1450	Colockum Creek Lower												Marble Mountain			
Butte Creek	18A3	28	39N	35E	4070	Squillchuck Creek												New Muddy River			
Cabin Creek	18A8	5	38N	36E	3170	Beehive Springs												Oldman Pass			
Goat Creek	18A4	26	39N	35E	3595	Scout-A-Vista												Plains of Abraham			
Snow Caps Creek	18A5	3	38N	36E	2150	Stemilt Creek												Smith Creek Road			
Snow Caps Trail	18A6	3	38N	36E	2720	Jump-Off												Spencer Meadow			
Summit G. S.	18A7	20	38N	35E	4600	Stemilt Slide												Table Lakes			
Colville River																		Timbered Peak			
Baird	17A6	19	36N	42E	3215	Upper Wheeler												Timbered Peak			
Carlson	18A9	34	32N	38E	2885	Creston-Kunz												Cowlitz River			
Chewelah	17A4	11	32N	41E	4925	Jack Woods												Gayuse Pass			
Stranger Mountain	17A5	26	31N	38E	4990	Krause												Mosquito Meadows			
Togo	18A10	6	29N	38E	3370	Sheffels												Okanapocosh			
Sonpoil River																		Packwood Lake			
Sherman Creek Pass	18A1	19	36N	35E	5350	Sherman												Pigtail Peak			
Clark	19A8A	2	36N	23E	7000	Wheatridge												Porto Hill			
McKanuck	19A9A	20	36N	24E	6750	Creston Creek												William Creek			
Mutton Creek No. 1	19A1	30	37N	24E	5700	Omney Flat												Nisqually River			
Mutton Creek No. 2	19A4	19	37N	24E	6000	Fish Lake												21C4			
Payson	20A28A	32	40N	18E	4300	Green Lake												21C3			
Rusby Meadows	19A3P	18	35N	24E	4000	High Creek												21C1			
Salmon Meadows	19A2PM	33	37N	24E	4500	Joe Lake												21C5			
Starvation Mtn.	19A10A	15	35N	23E	6750	Lake Cle Elum												21C1			
Touts Coulee	19A6	30	39N	25E	2845	Lemah Creek												21C1			
Methow River																		Norse Lake			
Billy Goat Pass	20A10A	10	38N	20E	6400	Nanum												Paradise Park (New)			
Oalliar Watch	20A29A	8	39N	20E	7000	Trail Creek												Stem Glade			
Harts Pass	20A5AP	7	37N	18E	6500	Tunnel Avenue												Corral Pass			
Horseshoe Basin	19A5A	15	40N	23E	7000	Van Epps Pass												White River			
Loup Loop	19A7	36	34N	23E	4650	Walters Flat												21B13			
Chelan Lake Basin																		Walters Flat			
Cloudy Pass	20A22A	12	31N	15E	6500	White Pass (East Side)												Green River			
Greenwood Flat	20A25A	3	31N	16E	3540	White Pass (Leach Lake)												21B24			
Little Meadows	20A24A	8	31N	16E	5275	White Pass (Leach Lake)												21B25			
Lyman Lake	20A23A	18	31N	16E	5900	White Pass (Leach Lake)												21B27			
Park Creek Flat	20A13A	19	34N	16E	2220	White Pass (Leach Lake)												21B28			
Park Creek Ridge	20A12A	18	34N	16E	4600	White Pass (Leach Lake)												21B29			
Petersons	20A16A	3	34N	17E	3730	White Pass (Leach Lake)												21B31			
Rainy Pass	20A9	21	35N	17E	4780	White Pass (Leach Lake)												21B35			
Safety Harbor	20A30A	32	31N	20E	6300	White Pass (Leach Lake)												21B35			
Mar Creek Pass	20A31A	34	33N	18E	6500	White Pass (Leach Lake)												21B35			
Entiat River																		Black and White			
Blue Creek G.S.	20B28A	19	28N	18E	5425	Asotin Creek												Black and White			
Brief	20B19	34	28N	19E	1600	Spruce Springs												Four Stream			
Entiat Meadows	20A33A	28	31N	17E	4540	Couse												Home Sweet Home			
Entiat River Trail	20A34A	2	29N	17E	3325	Homesstead												Sundown Pass			
Four Mile Ridge	20B27A	15	28N	19E	6800	Martin Springs (Helmers SW)												Soleaduck River			
Fox Camp	20A36A	17	30N	18E	6510	Satus Pass												23B1			
Pope Ridge	20B20P	22	29N	18E	3540	Klickitat River												23B1			
Pope Ridge Snow Pillow	20B24SP	22	29N	18E	3540	2001												23B1			
Pugh Ridge	20A32A	34	30N	18E	6725	White Salmon River												23B1			
Shady Pass	20A37	20	29N	19E	6200	Cultus Creek												23B1			
Snow Brushy	20A35A	21	30N	17E	3910	Lewis River												23B1			
Tommy Creek	20B21A	10	28N	18E	4900	Blue Lake												23B1			
Wenatchee River																		Bob's Trail			
Berne-Mill Creek	21B23	7	26N	15E	3170	Calamity Ridge												23B1			
Berne-Mill Creek (New)	21B41SP	13	26N	14E	3240	Council Pass												23B1			
Blewett Pass No. 2	20B2P	35	22N	17E	4370	Snoqualmie River												23B1			
Chiwaukum G. S.	20B16	4	25N	17E	1910	21B48												23B1			
Lake Wenatchee	20B5	33	27N	17E	1127	21B2												23B1			
Leavenworth R. S.	20B17	1	24N	17E	2140	21B18												23B1			
Merritt	20B18	4	26N	16E	4070	21B19												23B1			
Stevens Pass	21B1P	14	26N	13E	4070	21B18												23B1			
Stevens Pass Sand Shed	21B45	12	26N	13E	3700	21B19												23B1			

LEGEND  
21A2 SNOW COURSE AND SOIL MOISTURE STATION  
21A3 SNOW COURSE AND SOIL MOISTURE STATION  
21A4 SNOW COUR



# WATER SUPPLY OUTLOOK

State of Washington

May 1, 1978

\*\*\*\*\*  
\*\* \* \* \* \* \*  
\*\*  
\*\* The water supply outlook for the northern part of the state,  
\*\* including British Columbia, has improved from that which was  
\*\* reported last month. The percentage improvement ranges from  
\*\* 6 to 10 percent over most of this area. The central and  
\*\* southern portion of the state, from the Wenatchee south,  
\*\* have a water supply outlook that is reduced from that  
\*\* previously reported. This, in spite of generally above  
\*\* normal precipitation which occurred over the state. The  
\*\* snow pack is gone, for all practical purposes, in the low  
\*\* and middle elevations, but the snow courses at the higher  
\*\* elevations reported an increase of snow water equivalent due  
\*\* to this above normal precipitation. Flows of the major  
\*\* streams in the state were above normal with the exception  
\*\* being primarily low elevation watersheds.  
\*\*  
\*\* \* \* \* \* \*  
\*\*\*\*\*

## SNOW COVER

The snow pack in the Upper Columbia Basin now ranges from 44 percent below average for the Yakima Drainage to 21 percent above normal for the Methow. The Methow Drainage is measured by only one snow course. In the Lower Columbia Drainage, the snow cover ranges from 41 percent below normal for the Lewis and Mill Creek Drainages to 26 percent below for the Cowlitz and White Slamon Drainages. The Puget Sound Drainage snow courses have a snow cover that ranges from 57 percent below normal on the Snoqualmie to 18 percent below in the Skykomish Drainage. The Olympic Peninsula has a snow cover that is 50 percent below normal for the northern slope drainages.

## RESERVOIRS

The major irrigation reservoirs are generally in excellent shape. The five reservoirs in the Yakima Basin have water in storage 21 percent greater than normal. These reservoirs are currently 90 percent full. Conconully Reservoir, a small pond above Okanogan, has only 51 percent of average storage as of May 1, and is only 44 percent full. Salmon Lake, in the same area, is 5 percent below normal and 26 percent shy of being full. The power reservoirs generally have excellent amounts of water in storage or good potential for filling with the spring runoff.

## PRECIPITATION

As reported by the National Weather Service, precipitation was above normal in all drainage divisions except the northwest slopes of the Cascades. This precipitation regime ranges from 10 percent below normal for the northwest slopes to 150 percent above normal in southeastern Washington. The Bureau of Reclamation reports precipitation at their five reservoirs to be 15 percent above average for this past month.

## STREAMFLOW

Flow of the main stem, during the past month, was 16 to 21 percent above normal. Most of the tributary streams in the northern part of the state show above normal runoff while some in the southern area have below normal outflows. Streamflow forecasts, as stated above, have been increased in the northern portion of the state and reduced in the southern portion. These forecasts now range from 35 percent below normal to 10 percent above. Numerical forecasts can be found on the following pages.



# STREAMFLOW FORECASTS - MAY 1978

The following summarized runoff forecasts are based principally on mountain snow-cover and on the assumption that precipitation and temperature will be near average from the present time to the end of the forecast period. Appreciable deviations from normal of temperature and/or precipitation will correspondingly modify these forecasts. Streamflow figures for 1977 are preliminary and subject to revision.

Basin, Stream and Station	Forecast Runoff 1978	Seasonal Streamflow in Thousands of Acre-Feet					
		% 15-Yr. Avg.	Fore- cast period	1977	1976	1975	15-Yr. Average 58-72
<u>COLUMBIA BASIN</u>							
<u>COLUMBIA RIVER SYSTEM</u> **							
Columbia River	37200	86	May-Sept	29046	50657	39289	43490
at Birchbank <u>1/</u>	29800	86	May-July	21302	35698	31132	34632
	21200	86	May-June	15503	22773	20618	24633
Columbia River	55000	89	May-Sept	36444	73149	62331	62110
at Grand Coulee <u>1/</u>	45300	88	May-July	27451	54890	51699	51473
	34500	88	May-June	21045	38731	37207	39153
Columbia River	61600	91	May-Sept	38802	78541	68770	67890
bl. Rock Island Dam <u>1/</u>	51100	91	May-July	29535	59584	57944	56790
	39300	91	May-June	22883	42213	41976	43202
Columbia River	82500	90	May-Sept		106435	98803	91550
at The Dalles, OR <u>1/</u>	68500	89	May-July		83524	84097	76815
	53500	89	May-June		62723	62915	60083
<u>PEND OREILLE RIVER SYSTEM</u> **							
Pend Oreille River	12100	88	May-Sept	4938	15035	15807	13740
bl. Box Canyon	11000	88	May-July	4209	13376	14132	12471
	9300	88	May-June	3713	11084	10676	10561
<u>KETTLE RIVER SYSTEM</u>							
Kettle River	1700	105	May-Sept	973	2197	1747	1614
nr. Laurier	1600	104	May-July	932	1875	1665	1534
	1440	104	May-June	865	1589	1479	1381
Colville River	100	110	May-Sept		82	175	91
at Kettle Falls	85	106	May-July		66	153	80
	75	106	May-June		58	137	71

1/ Observed flow corrected for storage in any of the following reservoirs which are above the station: Kootenay Lake, Hungry Horse, Flathead Lake, Pend Oreille Lake, F. D. Roosevelt Lake, Lake Chelan, Coeur d'Alene Lake, Brownlee, Noxon Reservoir and pumpage at F. D. Roosevelt Lake.

\*\* Forecasts made by National Weather Service, River Forecast Center, Portland, OR

Basin, Stream and Station	Forecast Runoff 1978	Seasonal Streamflow in Thousands of Acre-Feet					
		% 15-Yr. Avg.	Fore- cast period	1977	1976	1975	15-Yr. Average 58-72
<u>SPOKANE RIVER SYSTEM *</u>							
Spokane River	1750	86	May-Sept	687	2223	2842	2010
at Post Falls, ID <u>2/</u>	1650	86	May-July	735	2077	2699	1976
	1550	86	May-June	581	1892	2457	1800
<u>OKANOGAN RIVER SYSTEM **</u>							
Similkameen River	1380	97	May-Sept	558	1859	1398	1425
nr. Nighthawk	1290	97	May-July	517	1635	1303	1333
	1100	97	May-June	460	1262	1057	1141
Okanogan River	1510	95	May-Sept	617	2055	1464	1587
nr. Tonasket	1360	94	May-July	553	1706	1319	1446
	1150	95	May-June	592	2152	1063	1213
<u>METHOW RIVER SYSTEM **</u>							
Methow River	1030	109	May-Sept		1121	942	946
nr. Pateros	950	108	May-July		963	862	879
	800	107	May-June		718	678	748
<u>CHELAN RIVER SYSTEM</u>							
Chelan River	1200	105	May-Sept	510	1365	1289	1139
at Chelan <u>3/</u>	1050	105	May-July	392	1083	1136	999
	800	104	May-June	314	735	784	767
Stehekin River	850	102	May-Sept	422	960	885	830
at Stehekin	720	102	May-July	310	737	758	702
	530	101	May-June	239	473	488	526
Entiat	250	112	May-Sept		290	258	223
nr. Ardenvoir	225	110	May-July		247	233	204
	180	109	May-June		170	172	165
<u>WENATCHEE RIVER SYSTEM</u>							
Wenatchee River	1150	98	May-Sept	506	1394	1316	1165
at Plain	1020	98	May-July	414	1148	1182	1040
	780	96	May-June	352	776	844	809
Wenatchee River	1500	95	May-Sept	673	1903	1805	1583
at Peshastin	1340	94	May-July	564	1576	1623	1426
	1040	93	May-June	487	1067	1164	1121
Stemilt Basin	130#	94	May-Sept		144#	134#	138#
nr. Wenatchee	360	97					
Icicle Creek	330	96	Apr-Sept				371
nr. Leavenworth	270	97	Apr-July				342
			Apr-June				279

# Forecast in Thousands of Miners' Inches

\* Forecasts made by Jack A. Wilson, Soil Conservation Service, Boise, Idaho

\*\* Forecasts made by National Weather Service, River Forecast Center, Portland, Oregon

2/ Observed flow corrected for storage in Coeur d'Alene Lake and diversions by Spokane Valley Farms Company and Rathdrum Prairie Canals.

3/ Observed flow corrected for storage in Lake Chelan.

Basin, Stream and Station	Forecast Runoff 1978	Seasonal Streamflow in Thousands of Acre-Feet					
		% 15-Yr. Avg.	Fore- cast period	1977	1976	1975	15-Yr. Average 58-72
<u>YAKIMA RIVER SYSTEM</u>							
Yakima River	85	74	May-Sept	52	136	156	115
nr. Martin <u>4/</u>	75	72	May-July	42	120	142	104
	65	73	May-June	40	96	115	89
Yakima River	600	76	May-Sept		929	1020	794
at Cle Elum <u>5/</u>	540	76	May-July		817	920	706
	450	76	May-June		645	750	593
Yakima River	1100	63	May-Sept	596	2116	2324	1751
nr. Parker <u>6/</u>	1000	65	May-July	451	1800	2081	1550
	830	62	May-June	405	1404	1736	1329
Kachess River	65	65	May-Sept	39	120	141	100
nr. Easton <u>7/</u>	60	65	May-July	34	109	132	93
	55	68	May-June	32	87	107	81
Cle Elum River	330	80	May-Sept	182	506	506	410
nr. Roslyn <u>8/</u>	300	81	May-July	145	429	459	371
	250	82	May-June	126	314	355	306
Bumping River	110	85	May-Sept	52	163	172	129
nr. Nile <u>9/</u>	100	85	May-July	46	140	155	118
	80	83	May-June	42	97	112	96
American River	95	85	May-Sept		120	141	112
nr. Nile	88	85	May-July		103	129	103
	70	82	May-June		73	96	85
Tieton River	190	89	May-Sept	104	267	277	214
at Tieton Dam <u>10/</u>	160	90	May-July	74	208	232	178
	125	90	May-June	58	145	166	139
Naches River	650	87	May-Sept		908	959	748
nr. Naches <u>11/</u>	560	83	May-July		770	856	669
	470	84	May-June		579	666	557
Ahtanum Creek	35	90	May-Sept		43	50	39
nr. Tampico <u>12/</u>	32	91	May-July		37	44	35
	28	93	May-June		29	37	30

4/ Observed flow corrected for storage in Lake Keechelus.

5/ Observed flow corrected for storage in Keechelus, Kachess and Cle Elum Lakes and diversion by Kittitas Canal.

6/ Observed flow corrected for storage in Keechelus, Kachess, Cle Elum, Bumping and Rimrock Lakes and diversions by Roza, Union Gap, New Reservation, Old Reservation and Sunnyside Canals.

7/ Observed flow corrected for storage in Lake Kachess.

8/ Observed flow corrected for storage in Lake Cle Elum.

9/ Observed flow corrected for storage in Bumping Lake.

10/ Observed flow corrected for storage in Rimrock Lake.

11/ Observed flow corrected for storage in Bumping and Rimrock Lakes and diversions by Tieton, Selah Valley, Wapatox Canals and City of Yakima.

12/ Observed flow of North and South Forks (Combined).

Basin, Stream and Station	Forecast Runoff 1978	Seasonal Streamflow in Thousands of Acre-Feet					
		% 15-Yr. Avg.	Fore- cast period	1977	1976	1975	15-Yr. Average 58-72
<u>LOWER COLUMBIA RIVER SYSTEM</u>							
Mill Creek							
nr. Walla Walla	13	72	May-Sept		25	30	18
	10	21	May-July		16	25	14
	9	75	May-June		19	21	12
Lewis River	650	70	May-Sept	750	957	969	933
at Ariel <u>13/</u>	510	67	May-July	550	801	804	765
	440	68	May-June	480	662	666	643
Cowlitz River **	1290	78	May-Sept		1881	1894	1650
Bl. Mayfield Dam	1090	78	May-July		1548	1619	1391
	900	80	May-June		1169	1218	1123
Cowlitz River **	1600	76	May-Sept	1618	2302	2314	2108
at Castle Rock <u>14/</u>	1330	76	May-July	1224	1872	1946	1741
	1080	77	May-June	1049	1442	1484	1407
<u>OLYMPIC PENINSULA</u>							
<u>DUNGENESS RIVER SYSTEM</u>							
Dungeness River	105	71	May-Sept		143	139	147
nr. Sequim	85	71	May-July		110	108	119
	60	71	May-June		74	72	85
<u>PUGET SOUND</u>							
<u>SKAGIT RIVER SYSTEM</u>							
Skagit River	1730	85	May-Aug		2522	2123	2037
at Newhalem <u>15/</u>							
<u>CEDAR RIVER SYSTEM</u>							
Cedar River	60	65	Apr-Sept		91	101	91
at Cedar Falls							
<u>GREEN RIVER SYSTEM</u>							
Green River	145	65	May-Sept		228	293	220
bl. Howard Hanson Dam <u>16/</u>							
<u>ELWHA RIVER SYSTEM</u>							
Elwha River	300	65	May-Sept		551	501	465
nr. Port Angeles	240	63	May-July		430	391	375

\*\* Forecasts made by National Weather Service, River Forecast Center, Portland, Oregon

13/ Observed flow corrected for storage in Lake Merwin, Yale and Swift Reservoirs.

14/ Observed flow corrected for storage in Mayfield Reservoir.

15/ Observed flow corrected for storage in Diablo, Ross and Gorge Reservoirs.

16/ Observed flow corrected for storage in Howard Hanson Dam.



# COMPARISON OF SNOW COVER WITH THAT OF PREVIOUS YEARS

The following tabulation of Washington stream basins presents the water content of the snow about May 1, 1978 as percent of the same date in 1977 and 1976 and average of record.

Tributary Basin	No. of Courses Average	1978 Snow Water Expressed as percent of		
		1977	1976	1958-72 Avg.

## UPPER COLUMBIA BASIN

Pend Oreille	15	376	75	73
Kettle	12	408	68	89
Spokane	7	256	59	59
Okanogan	35	432	114	100
Methow	1	257	251	121
Chelan	1	215	78	106
Entiat	10	705	87	113
Wenatchee	6	278	48	70
Yakima	13	188	53	56

## LOWER COLUMBIA BASIN

Mill Creek	1	-	33	59
White Salmon	2	242	68	74
Lewis	11	182	51	59
Cowlitz	3	181	70	74

## PUGET SOUND

White	3	221	71	79
Green	2	278	64	58
Snoqualmie	1	131	37	43
Skykomish	2	266	66	82
Skagit	10	231	52	76
Baker	8	147	56	69
Nooksack	1	126	46	-

## OLYMPIC PENINSULA

Morse Creek	1	185	53	-
Elwha	1	155	39	49
Dungeness	1	156	-	50

RESERVOIR STORAGE - 1000 Acre Feet

BASIN OR STREAM	RESERVOIR	USABLE 1/ CAPACITY	1978	Measured May 1		Normal*
				1977	1976	
<u>COLUMBIA</u>						
Spokane	Coeur d'Alene Lake	225.1	202.4	179.3	236.7	253.2
Columbia	Franklin D. Roosevelt Lake	5232.0	860.4	1688.2	659.3	1654.6
Columbia	Banks Lake	714.9	505.0	464.3	597.3	457.7
Okanogan	Conconully Reservoir	13.0	5.7	7.4	11.3	11.2
Okanogan	Salmon Lake	10.5	7.4	9.3	9.8	7.8
Chelan	Lake Chelan	676.1	242.2	268.8	367.3	225.1
<u>YAKIMA</u>						
Yakima	Keechelus Lake	157.8	150.4	118.5	104.5	121.2
Kachess	Kachess Lake	239.0	237.2	234.2	218.5	199.2
Cle Elum	Lake Cle Elum	436.9	373.5	441.3	307.3	310.9
Bumping	Bumping Lake	33.7	32.4	26.2	8.0	16.1
Tieton	Rimrock Lake	198.0	170.6	154.6	141.2	146.9
<u>PUGET SOUND</u>						
Skagit	Ross Reservoir	1404.1	793.0	539.5	743.0	751.2
Skagit	Diablo Reservoir	90.6	83.3	86.8	87.1	85.7
Skagit	Gorge Reservoir	9.8	7.8	7.1	8.4	-

<sup>1/</sup> Based on Active Storage

\* 15-year average 1958-72

SOIL MOISTURE - May

Drainage Basin and Station			Profile	Inches Total Capacity	Soil Moisture Content Inches as of May 1		
	Number	Elev.	Depth		1978	1977	1976
<u>OKANOGAN</u>							
Salmon Meadows	19A2M	4500	48	5.4	-	3.8	4.3
Trout Creek	3-M	3600	48	7.3	-	-	4.9*
<u>YAKIMA</u>							
Domery Flat	21B20m	2200	48	6.9	-	-	-
Lake Cle Elum	21B14M	2200	48	12.8	-	-	-
<u>WALLA WALLA</u>							
Couse	17C3m	3650	48	11.1	9.1	6.4	-
Helmers	17C2M	4400	48	12.0	9.4	10.1	-
<u>WENATCHEE</u>							
Upper Wheeler	20B7M	4400	48	12.7	12.6	8.0	15.2

FALL SOIL MOISTURE

Drainage Basin and Station			Profile	Inches Total Capacity	Soil Moisture Content (Inches) as of Oct. 1		
	Number	Elev.	Depth		1977	1976	1975
<u>OKANOGAN</u>							
Salmon Meadows	19A02M	4500	48	5.4	-	3.4	3.2
Trout Creek	3-M	3600	48	7.3	3.2	3.4	3.1
<u>YAKIMA</u>							
Domery Flat	21B20m	2200	48	6.9	-	-	-
Lake Cle Elum	21B14M	2200	48	12.8	-	-	-
<u>WALLA WALLA</u>							
Couse	17C3m	3650	48	11.1	-	-	7.3
Helmers	17C2M	4400	48	12.0	-	-	6.5
<u>WENATCHEE</u>							
Upper Wheeler	20B7M	4400	48	12.7	6.6	-	8.6

# PRECIPITATION 1/

## Division Average Observations and Departures

Drainage Divisions	FALL		WINTER		SPRING	
	Sept-Oct Observed	1977 <u>2/</u> Departure	Nov.-1977--Mar.-1978 Observed	Departure	April 1978 Observed	Departure
Columbia in Canada	3.41	-1.61	13.30	-2.21	2.04	+0.33
Pend Oreille - Spokane	4.10	+0.06	17.28	-0.27	2.57	+0.75
Northeastern Washington	2.06	-0.41	10.62	+1.22	1.72	+0.46
Southeastern Washington	2.51	0.0	11.25	+0.82	3.83	+2.30
Central Washington	1.08	+0.11	7.55	+2.27	1.29	+0.64
North Central Washington	1.39	-0.21	8.13	+1.59	1.91	+1.06
Northwest Slope Cascades	11.16	-2.05	52.34	-3.05	6.00	-0.64
Southwest Slope Cascades	9.42	+0.74	40.82	-0.82	5.85	+0.85

Northeastern Washington	- Lower Spokane, Colville, Sanpoil and Lower Kettle Drainages.
Southeastern Washington	- Touchet, Tucannon and Palouse Drainages.
Central Washington	- Yakima, Wenatchee and Chelan Drainages.
North Central Washington	- Methow and Okanogan Drainages.
Northwest Slope Cascades	- Puget Sound Drainages.
Southwest Slope Cascades	- Lower Columbia Drainages.

1/ - Preliminary analysis by National Weather Service from data furnished by Meteorological Services of Canada and the National Weather Service.

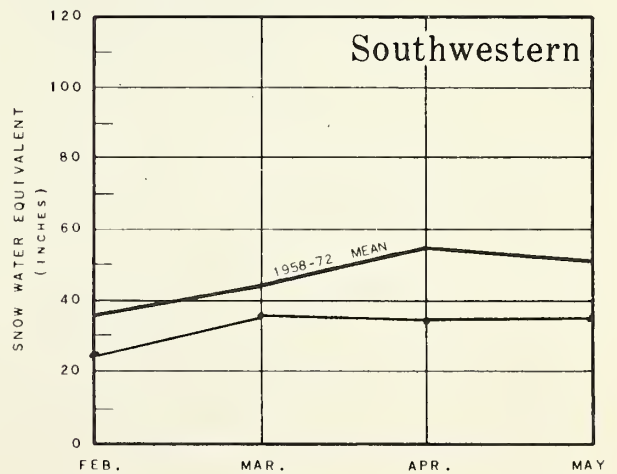
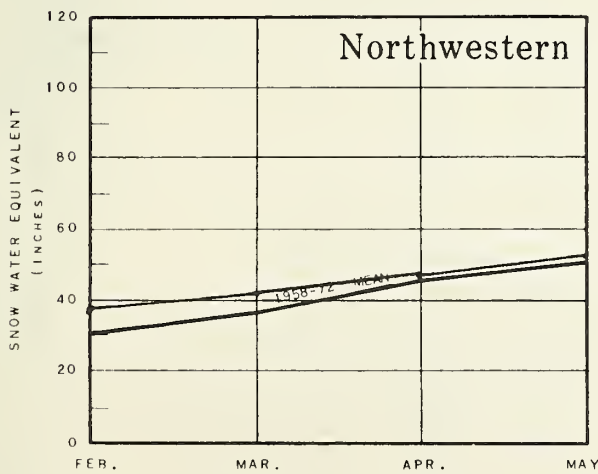
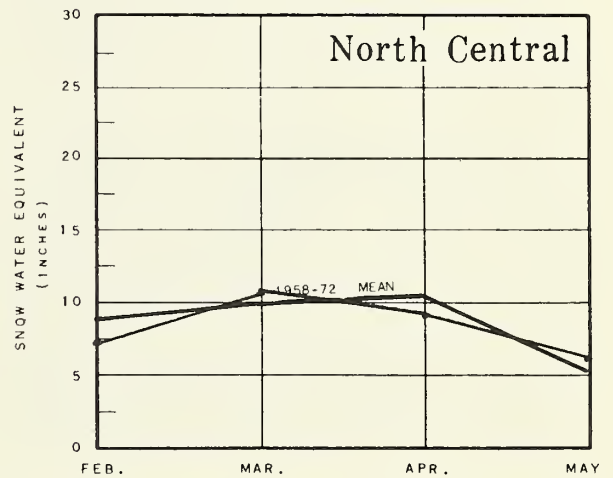
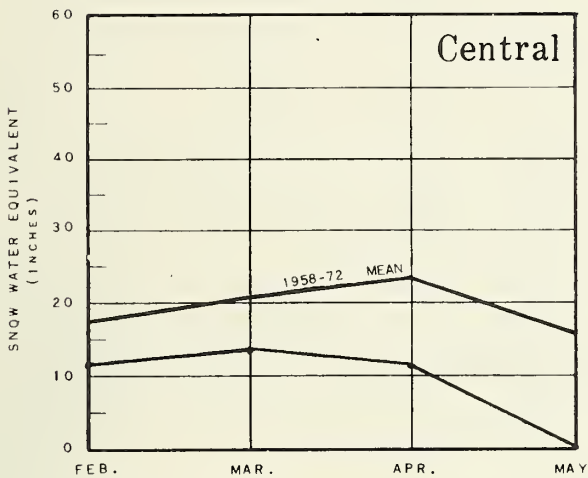
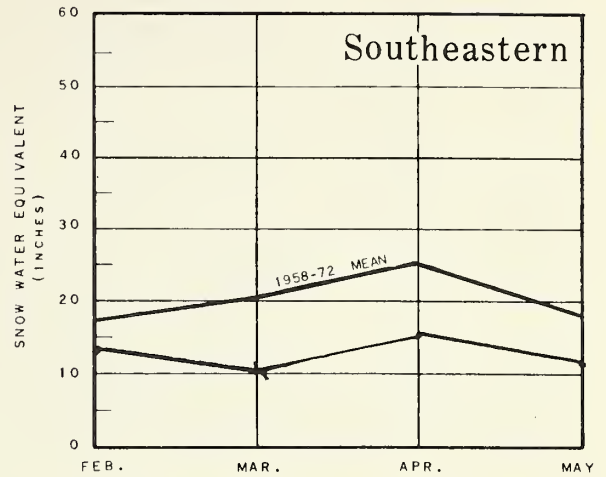
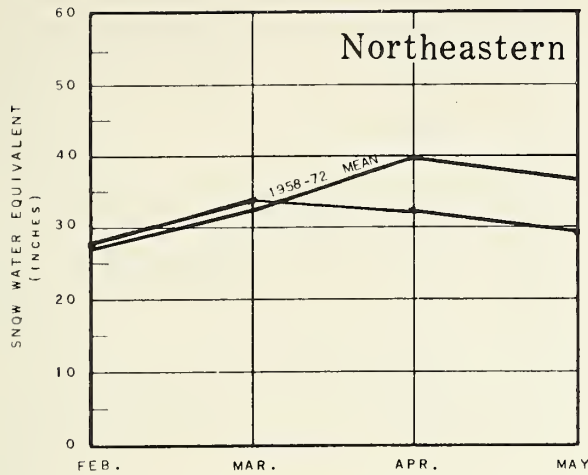
2/ - Departure from 15-year (1958-72) drainage division average.



# WASHINGTON SNOW COVER

1978

## DRAINAGE AREAS

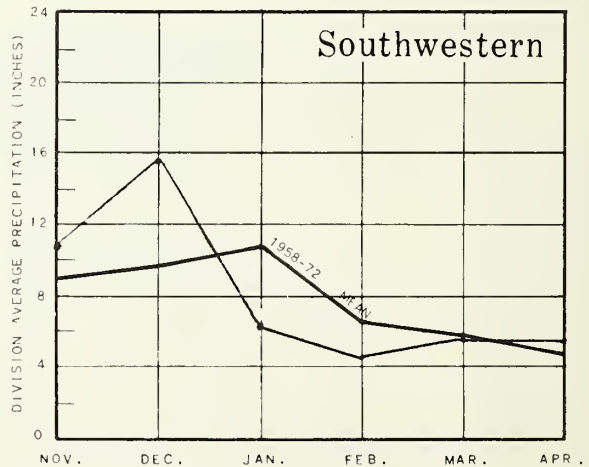
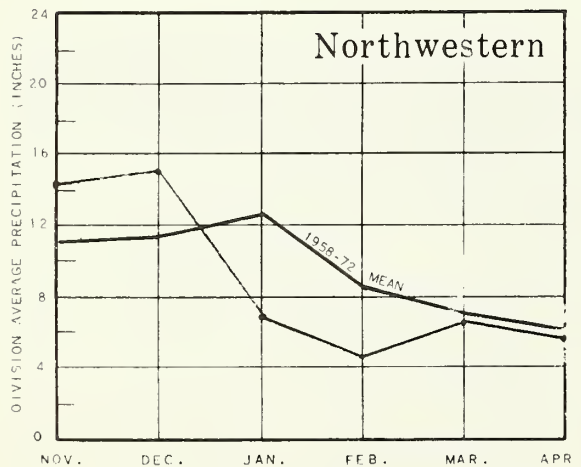
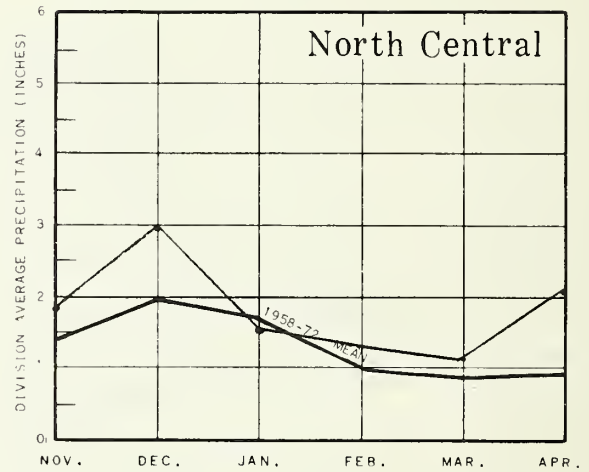
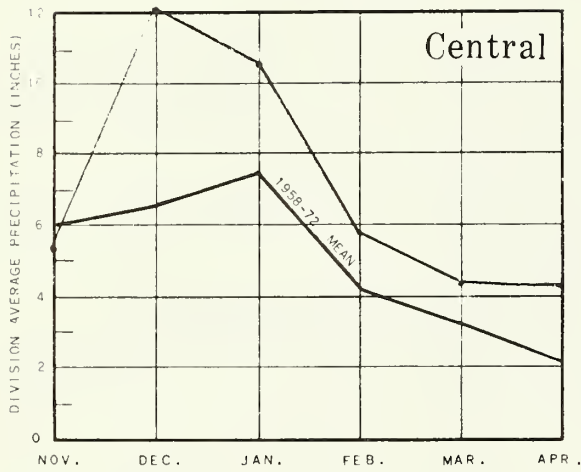
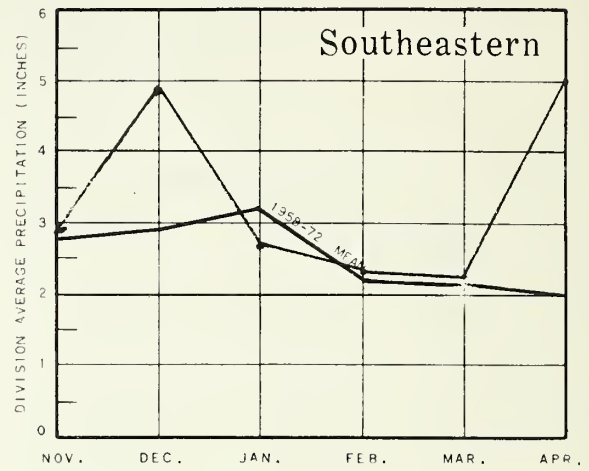
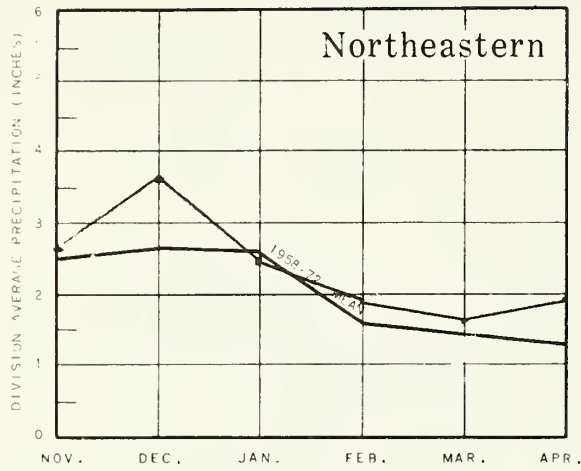


*Selected Snow Survey Courses by Soil Conservation Service*

# WASHINGTON VALLEY PRECIPITATION

1977 - 1978

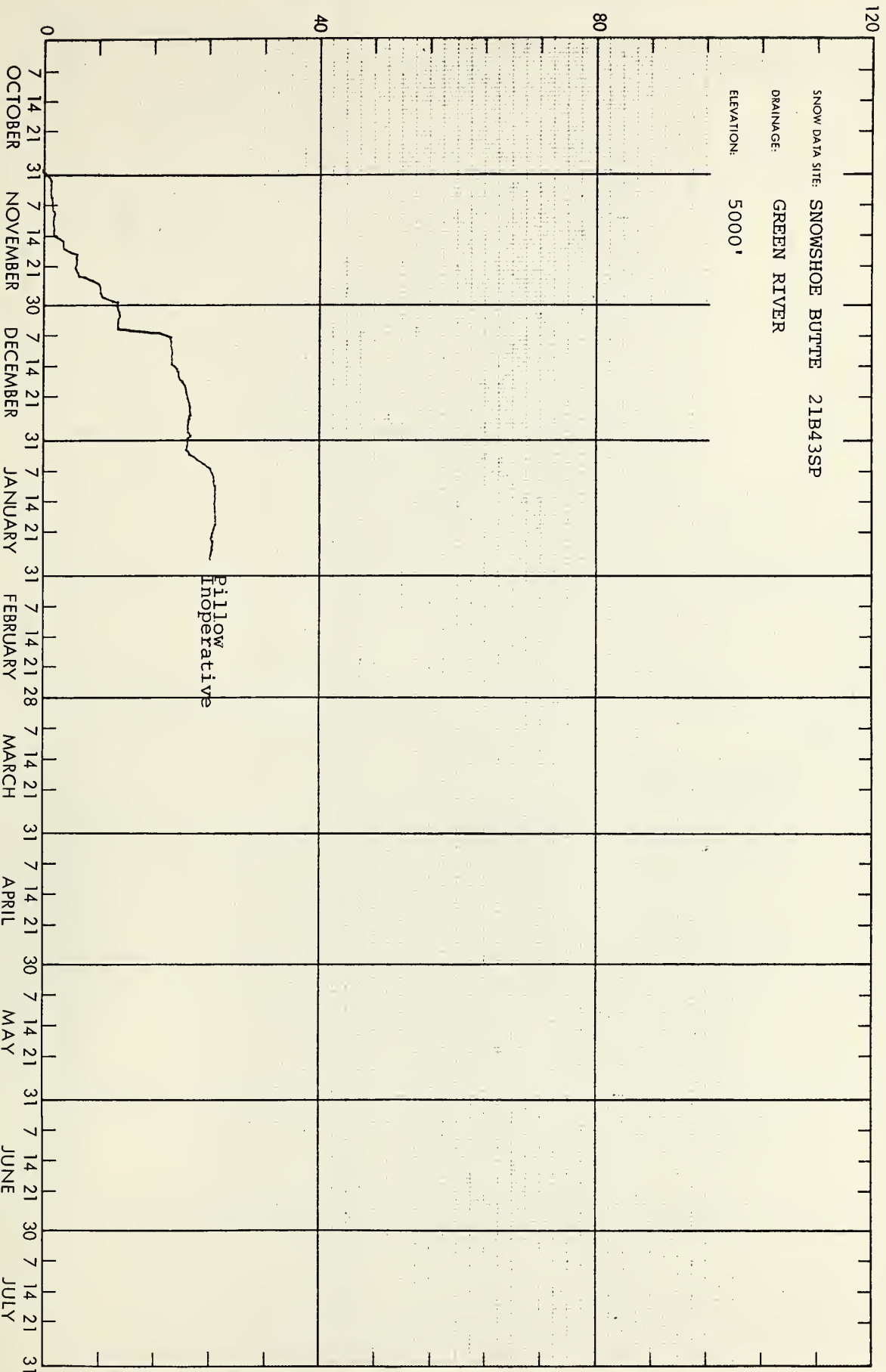
## DRAINAGE AREAS



*Preliminary Analysis by National Weather Service*

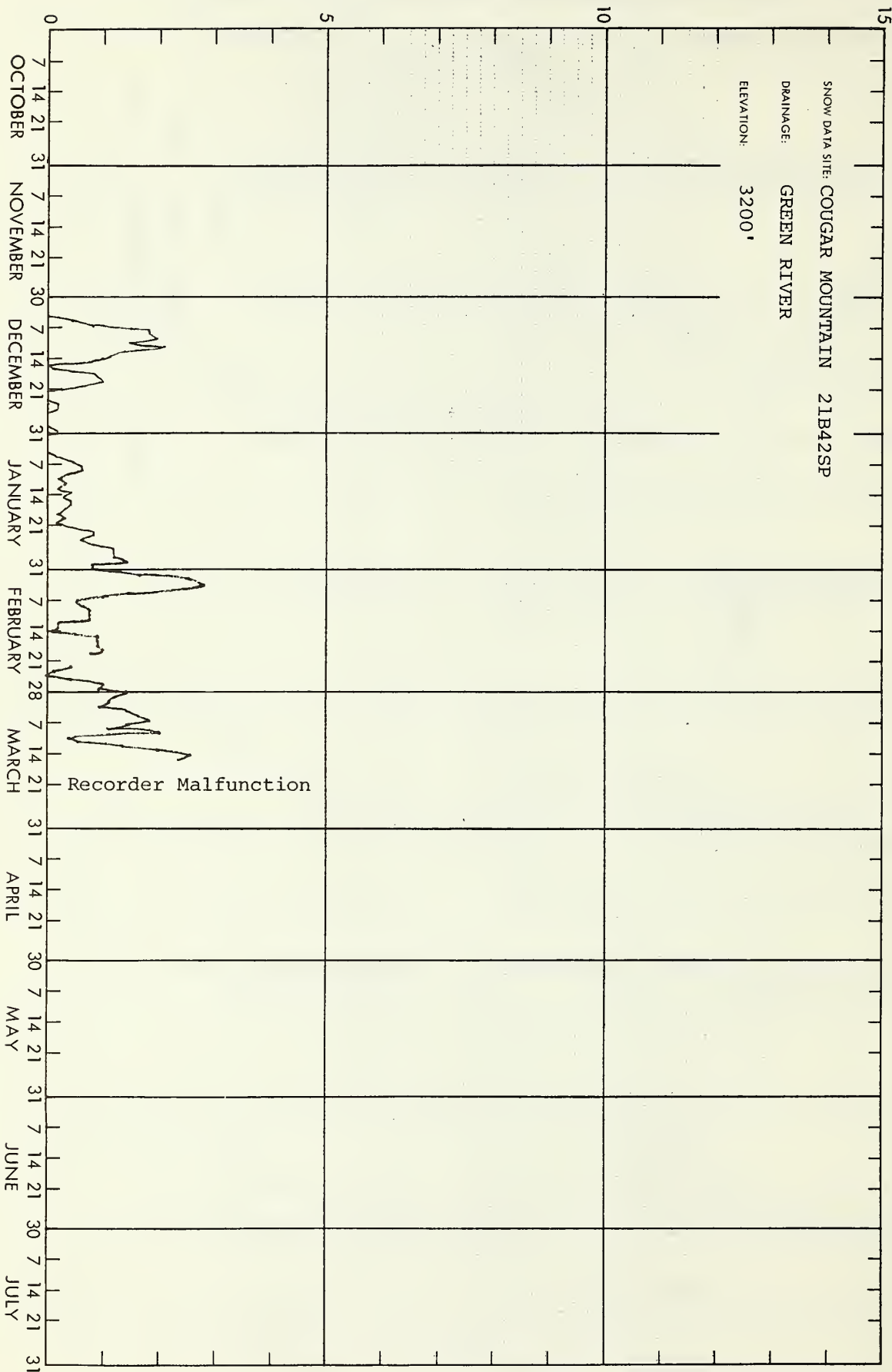
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# INCHES OF WATER IN SNOWPACK



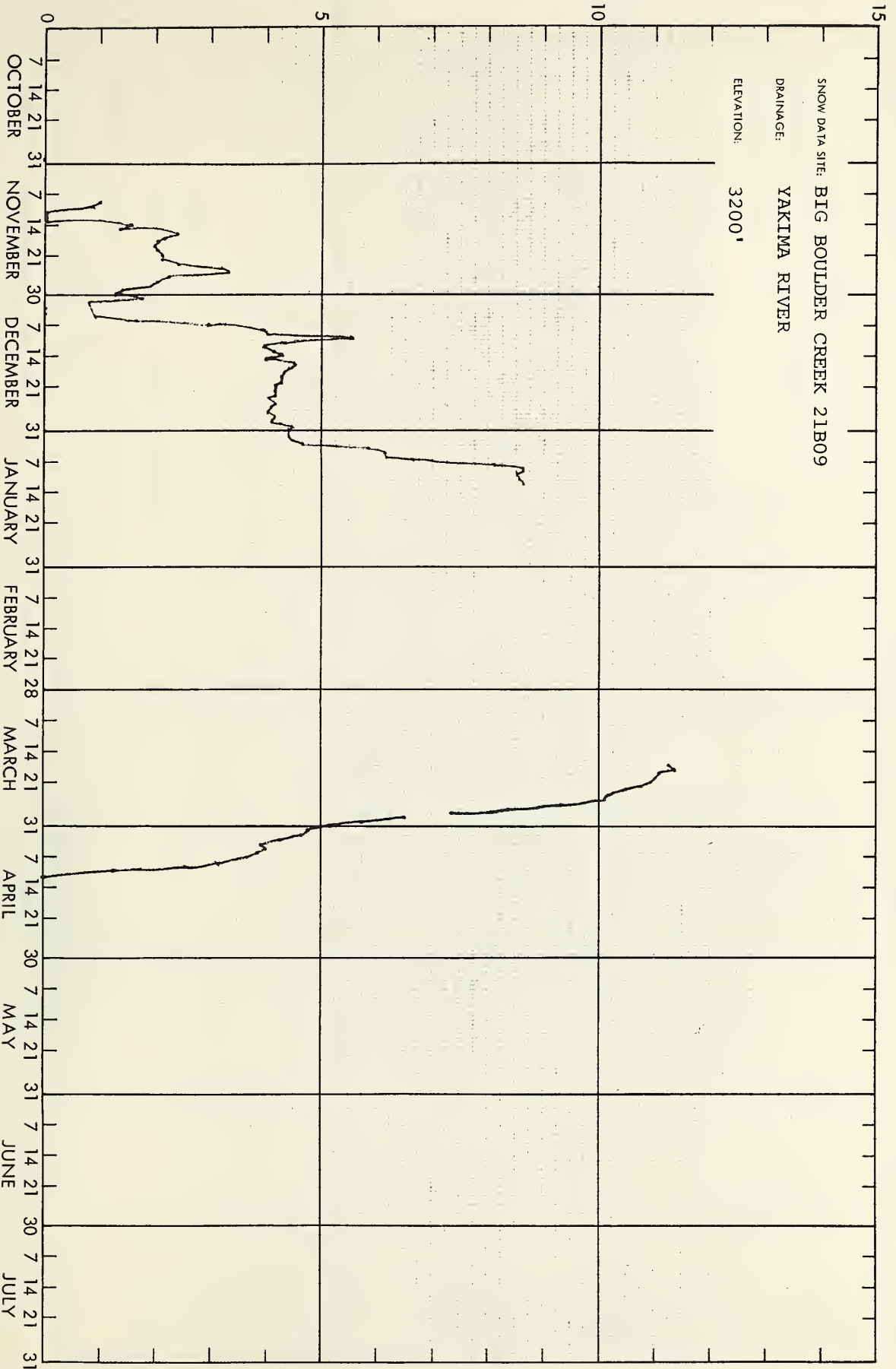
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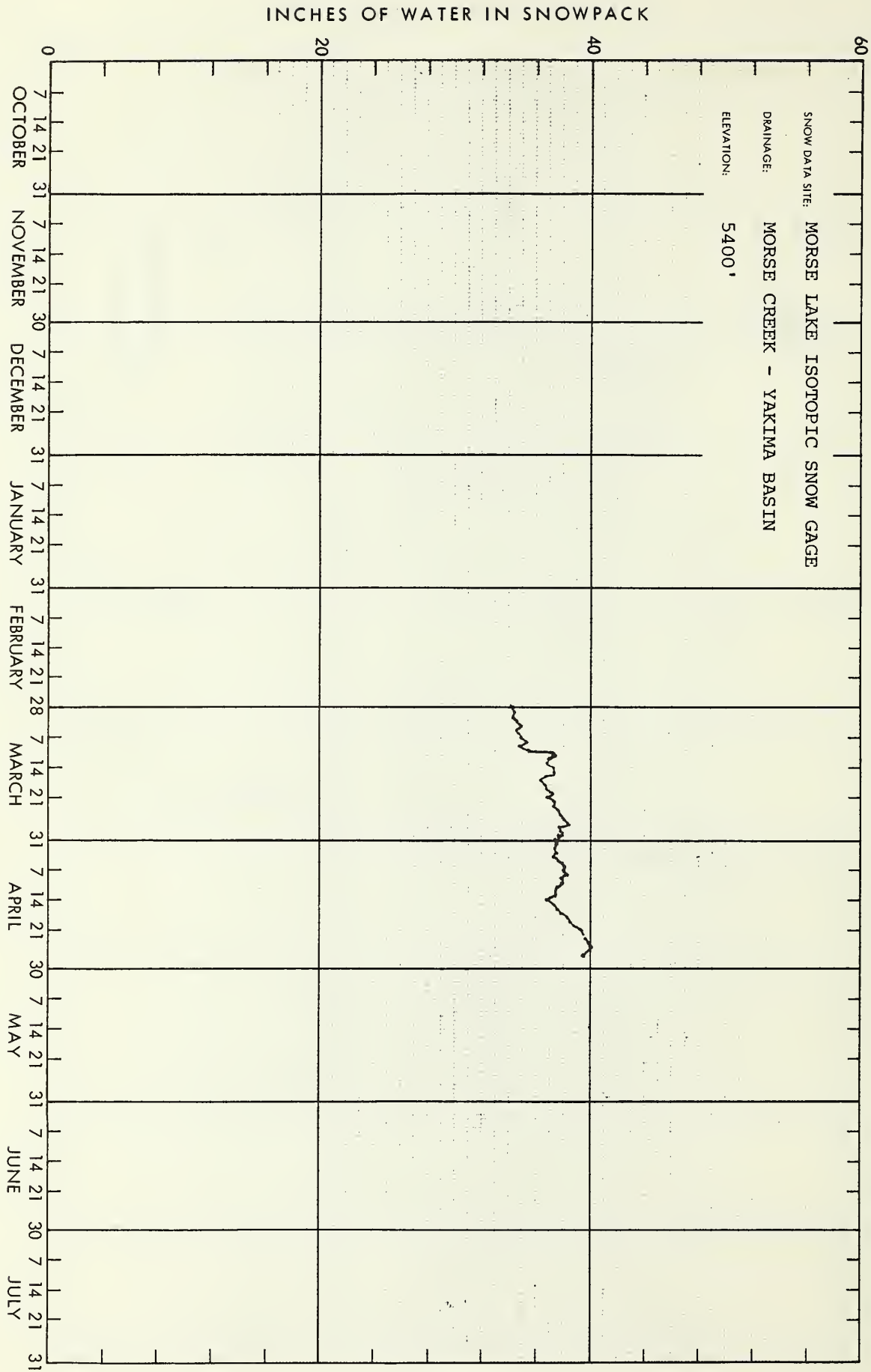




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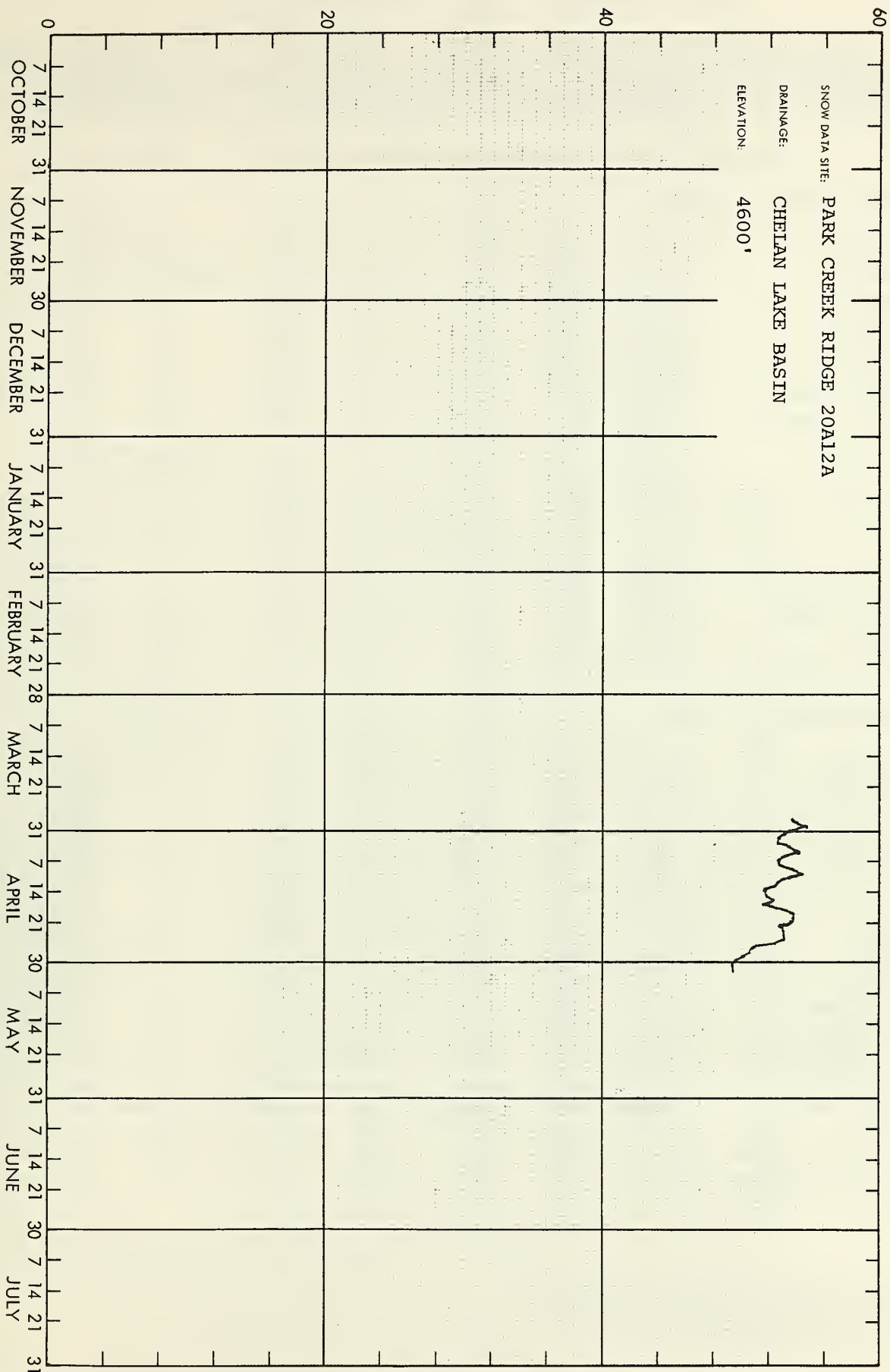


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INCHES OF WATER IN SNOWPACK



## SNOW DATA TO MAY 1, 1978 - APPENDIX 1

## SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
			Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (Inches)	
NAME	Number	Elevation				Last Year	Average <sup>#</sup>

## U P P E R C O L U M B I A D R A I N A G E

PEND OREILLE RIVER

Baree Creek	15B11	5500	5/1	71	37.8	18.6	49.6
Baree Midway	15B16	4600	5/1	43	20.8	11.7	35.1
Baree Trail	15B15	3800	5/1	0	0.0	0.0	1.2
Benton Meadow	16A02	2344	4/27	0	0.0	0.0	0.0
Benton Spring	16A03	4900	4/27	24	10.7	0.0	15.7
Boyer Mountain	17A02	5250	4/26	57	27.2	2.1	26.6
Brush Creek Timber	14A13	5000	4/26	10	4.1	0.0	8.2
Bunchgrass Meadow	17A01	5000	4/28	58	28.9	6.5	30.4
Heart Lake Trail	14C10	4800	4/22	32	13.3	3.3	19.0
Hoodoo Basin	15C10	6000	4/27	104	52.4	20.6	55.2
Hoodoo Creek	15C01	5900	4/27	95	45.4	18.4	52.2
Lookout	15B02	5250	4/14	69	30.3	15.3	-
			4/28	59	29.6	8.3	37.7
Nelson	19-Can	3050	4/27	6.3	2.4	1.5	7.4*
Schweitzer Bowl	16A06	4500	4/28	38	17.8	0.0	26.6
Schweitzer Ridge	16A05	6100	4/28	103	51.2	14.5	50.6
Smith Creek	16A01	4800	4/28	83	36.8	15.2	47.9
Winchester Creek	17A03	2970	4/26	1.5	0.7	0.0	1.6

KETTLE RIVER

Barnes Creek	90-Can	5300	4/27	48	21.4	14.0	21.2*
Big White Mtn.	154-Can	5500	5/1	52	21.7	10.3	21.7*
Bluejoint Mtn.	244-Can	7500	4/27	74	31.4	11.3	32.5*
Boulder Road	18A02	1450	4/24	0	0.0	0.0	0.0
Butte Creek	18A03	4070	4/24	18	6.0	0.0	5.9
Cabin Creek	18A08	3170	4/24	3.2	0.8	0.0	1.5
Carmi	126-Can	4100	5/1	3.1	1.4	0.0	2.1*
Farron # 1	17-Can	4000	4/27	22	9.0	1.2	8.5*
Farron # 2	243-Can	4000	4/27	25	10.2	0.9	9.6*
Goat Creek	18A04	3595	4/24	0	0.0	0.0	0.0
Graystoke Lake	5-Can	5950	4/28	44	16.9	10.0	23.7*
Monashee Pass	48A-Can	4500	4/27	30	13.1	8.0	13.3*
Old Glory Mountain	42-Can	7000	5/1	Not Measured		5.5	30.9*
Snow Caps Creek	18A05	2150	4/24	0	0.0	0.0	0.0
Snow Caps Trail	18A06	2720	4/24	0	0.0	0.0	0.0
Summit G.S.	18A07	4600	4/24	16	5.6	0.0	6.0
Trapping Creek Lower	166-Can	3050	5/1	0	0.0	0.0	0.0*
Trapping Creek Upper	165-Can	4450	5/1	12	4.8	0.0	6.5*

# Average based on 1958-72 average

\* Average for years of record



## SNOW DATA TO MAY 1, 1978 - APPENDIX 2

## SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
			Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches)	
NAME	Number	Elevation				Last Year	Average <sup>##</sup>

SPOKANE RIVER

Above Burke	15B08	6100	5/29	28	13.4	4.7	-
Copper Ridge	16B02	4800	4/27	18	9.2	0.0	27.3
Forty-nine Meadows	15B03	5000	5/2	32	12.8	4.0	30.3
Fourth of July Summit	16B03	3100	4/29	0	0.0	0.0	-
Granite Peak	15B13A	6000	5/2	81	33.0	15.5	48.3
Lookout	15B02	5250	4/14	69	30.3	15.3	-
			4/28	59	29.6	8.3	37.7
Lost Lake	15B14A	6000	5/2	105	44.8	19.3	62.0
Lower Sands Creek	16B01	3400	4/27	20	9.7	7.3	16.0

OKANOGAN RIVER

Aberdeen Lake	6A-Can	4300	5/1	2.4	0.7	0.0	1.8*
Blackwall Mountain	100-Can	6250	5/1	69	33.9	17.4	38.3*
Bouleau Lake	234-Can	4580	4/30	32	13.1	5.7	14.2*
Brenda Mine	193-Can	4800	4/27	26	11.7	0.0	10.4*
Brookmere	27-Can	3200	5/1	11	3.1	1.2	5.9*
Carrs Landing Upper	168-Can	3200	4/29	0	0.0	0.0	0.0*
Enderby	130-Can	6250	4/27	108	46.0	29.9	43.4*
Esperon Creek Lower	164-Can	4400	4/29	21	8.5	0.0	10.6*
Esperon Creek Middle	163-Can	4700	4/29	28	12.6	0.0	13.8*
Esperon Creek Upper	162-Can	5400	4/29	43	18.4	4.7	20.4*
Freezeout Meadows New	20A38	5000	4/25	55	24.5	14.3	31.0
Graystoke Lake	5-Can	5950	4/28	44	16.9	10.0	23.7*
Hamilton Hill	107-Can	4900	4/27	34	16.6	4.6	13.1*
Harts Pass	20A05A	6500	4/25	115	56.1	21.8	50.7
Isintok Lake	152-Can	5510	4/29	22	9.1	0.0	7.5*
Lost Horse Mountain	105-Can	6300	5/1	38	10.4	3.8	10.9*
Loup Loup	19A07	4650	4/28	14	6.4	0.0	-
McCulloch	4-Can	4200	5/1	1.6	0.5	0.0	2.9*
Missezula Mountain	106-Can	5100	4/25	25	11.4	0.0	5.4*
Mission Creek	5A-Can	6000	4/28	57	23.5	14.7	22.0*
Monashee Pass	48A-Can	4500	4/27	30	13.1	8.0	13.3*
Mount Kobau	156-Can	5950	4/27	46	16.8	2.1	13.7*
Mutton Creek No. 1	19A01	5700	4/26	40	15.7	0.0	10.9
Mutton Creek No. 2	19A04	6000	4/26	59	17.1	0.0	15.5
Mutton Creek No. 2 SP	19A11SP	6000	4/26	-	22.2	0.0	-
New Copper Mountain	46A-Can	4300	4/26	0	0.0	0.0	1.8*
New Pentiction Res. #2	183-Can	5225	4/29	28	9.0	1.4	9.5*
Nickel Plate Mtn.	47-Can	6200	4/30	37	13.2	2.6	8.0*
Oyama Lake	203-Can	4400	4/28	9.1	3.4	0.0	3.9*
Postill Lake	55-Can	4500	5/1	13	5.2	2.7	6.9*

# Average based on 1958-72 average

\* Average for years of record

## SNOW DATA TO MAY 1, 1978 - APPENDIX 3

SNOW			THIS YEAR			PAST RECORD	
DRAINAGE BASIN and/or SNOW COURSE			Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches)	
NAME	Number	Elevation				Last Year	Average <sup>†</sup>

OKANOGAN RIVER (Cont.)

Quartette Lake	34-Can	4000	4/26	20	9.1	4.1	11.6*
Rusty Creek	19A03	4000	4/27	2.2	0.7	0.0	0.6
Salmon Meadows	19A02	4500	4/26	18	6.6	0.0	5.4
Silver Star Mountain	99-Can	6050	4/30	77	36.3	14.6	28.2*
Summerland Reservoir	3A-Can	4200	4/29	16	6.7	0.0	6.9*
Trout Creek	3-Can	4700	4/28	15	5.7	0.2	5.3*
Vaseux Creek	233-Can	4600	4/29	10	3.6	0.0	2.8*
White Rocks Mountain	70-Can	6000	4/27	63	26.5	6.9	27.9*

METHOW RIVER

Harts Pass	20A05A	6500	4/25	115	56.1	21.8	50.7
Loup Loup	19A07	4650	4/28	14	6.4	0.0	-
Mutton Creek No. 1	19A01	5700	4/26	40	15.7	0.0	10.9
Mutton Creek No. 2	19A04	6000	4/26	49	17.1	0.0	15.6
Mutton Creek No. 2 SP	19A11SP	6000	4/26	-	22.2	0.0	-
Rusty Creek	19A03	4000	4/27	2.2	0.7	0.0	0.6
Salmon Meadows	19A02	4500	4/26	18	6.6	0.0	5.4

CHELAN LAKE BASIN

Rainy Pass	20A09	4780	4/25	93	46.8	21.8	44.3
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ENTIAT RIVER

Blue Creek G.S.	20B28a	5425	4/28	84	42.8	11.9	New
Brief	20B19	1600	4/25	0	0.0	0.0	0.0
Entiat Meadows +	20A33a	4540	4/28	78	36.7	9.9	41.0
Entiat River Trail +	20A34a	3325	4/28	24	11.3	0.0	9.7
Four Mile Ridge +	20B27a	6800	4/28	94	47.9	4.0	-
Fox Camp +	20A36a	6510	4/28	154	78.5	19.5	63.5
Pope Ridge	20B20	3540	4/28	22	10.2	0.0	8.2
Pugh Ridge +	20A32a	6725	4/28	87	44.4	11.2	38.7
Shady Pass	20A37	6200	4/27	75	38.2	2.2	-
Snow Brushy +	20A35a	3910	4/28	69	32.4	6.9	30.8
Tommy Creek +	20B21a	4900	4/28	52	26.5	0.0	22.5

# Average based on 1958-72 average

\* Average for years of record

+ Snow water equivalent estimated from aerial stadia observation

## SNOW DATA TO MAY 1, 1978 - APPENDIX 4

## SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
			Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches)	
NAME	Number	Elevation				Last Year	Average <sup>#</sup>
<u>WENATCHEE RIVER</u>							
Berne-Mill Creek	21B23	2925	4/27	37	17.9	6.0	21.1
Berne-Mill Creek New	21B41SP	3240	4/27	14	7.0	0.0	17.7
Blewett Pass No. 2	20B02	4270	4/13	20	9.2	2.2	13.0
			4/25	14	6.8	0.0	9.5
Chiwaukum G.S.	20B16	1810	4/27	0	0.0	0.0	1.8
Fish Lake	21B04	3371	5/1	Not Measured		2.0	26.7
Lake Wenatchee	20B05	1970	4/27	2.7	1.1	0.0	1.6
Leavenworth R.S.	20B17	1127	4/27	0	0.0	0.0	0.0
Merritt	20B18	2140	4/27	0	0.0	0.0	3.8
Stevens Pass	21B01	4070	4/12	94	43.3	25.6	55.2
			4/27	92	45.5	22.9	55.8
Stevens Pass Sand Shed	21B45	3700	4/12	60	28.7	12.2	-
			4/27	51	25.2	7.6	-

SQUILCHUCK CREEK

Beehive Springs	20B03	4400	4/28	3.4	1.5	0.0	1.7
Scout-A-Vista	20B04	3400	4/28	0	0.0	0.0	0.4

STEMILT CREEK

Jump-Off	20B08	4450	4/28	13	5.2	0.0	2.8
Stemilt Slide	20B06	5000	4/27	16	7.4	0.0	7.1
Upper Wheeler	20B07	4400	4/27	0	0.0	0.0	1.0

COLOCKUM CREEK

Colockum Creek Upper	20B22	5300	4/28	20	10.0	0.0	-
Colockum Creek Lower	20B23	4300	4/28	3.5	1.5	0.0	-
Trough # 2	20B25SP	5310	4/28	30	15.0	0.0	-

YAKIMA RIVER

Big Boulder Creek	21B09	3200	4/28	0	0.0	0.0	7.4
Blewett Pass No. 2	20B02	4270	4/13	20	9.2	2.2	13.0
			4/25	14	6.8	0.0	9.5
Bumping Lake	21C08	3450	4/13	14	6.0	0.0	13.4
			4/27	7	3.1	0.0	9.4
Bumping Lake New	21C36	3400	4/13	22	9.1	0.0	-
			4/27	15	6.9	0.0	15.0
Cayuse Pass	21C06	5300	5/2	155	70.9	43.4	-
Corral Pass	21B13	6000	4/28	71	33.5	15.6	-
Fish Lake	21B04	3371	5/1	Not Measured		2.0	26.7

# Average based on 1958-72 average

## SNOW DATA TO MAY 1, 1978 - APPENDIX 5

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
			Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches)	
NAME	Number	Elevation				Last Year	Average #

YAKIMA RIVER (Cont.)

Joe Lake +	21B46a	4624	4/29	130	62.4	40.0	-
Lake Cle Elum	21B14M	2200	4/27	0	0.0	0.0	0.0
Lemah Creek +	21B47a	3327	4/29	12	5.8	14.0	-
Morse Lake	21C17	5400	4/28	103	51.2	18.0	65.1
Olallie Meadows	21B02	3625	4/12	51	23.4	20.2	48.4
			5/1	41	20.9	15.9	48.6
Satus Pass	20D01	4030	4/28	0	0.0	-	1.9
Stampede Pass SP	21B10	3860	4/13	55	28.4	12.0	43.4
			4/27	48	25.2	6.9	43.4
Tunnel Avenue	21B08	2450	4/13	19	7.3	0.0	20.1
			4/27	0	0.0	0.0	16.0
Van Epps Pass +	20B26a	5925	4/29	98	47.0	21.8	-
Waptus Lake +	21B49a	3024	4/29	33	15.8	12.9	-
White Pass (E. Side)	21C28	4500	4/13	38	16.9	6.3	26.0
			4/27	37	16.5	0.0	25.9

L O W E R C O L U M B I A D R A I N A G EASOTIN CREEK

Spruce Springs	17C04	5700	4/24	35	16.1	1.8	25.8
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MILL CREEK

Tollgate	18D3M	5070	4/25	24	11.2	0.0	18.9
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KLICKITAT RIVER

Satus Pass	20D01	4030	4/28	0	0.0	-	1.9
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WHITE SALMON RIVER

Cultus Creek	21C12	4000	4/25	87	39.9	18.3	48.9
Surprise Lakes	21C13A	4250	4/25	78	35.3	13.2	52.9

WIND RIVER

Old Man Pass	21D19	3100	4/25	0	0.0	0.0	12.6
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LEWIS RIVER

Blue Lake +	21C22a	4800	4/25	180	82.2	39.1	92.4
Bob's Trail	21C21	2200	4/25	0	0.0	0.0	7.8
Calamity Ridge +	22D01a	2500	4/25	0	0.0	0.0	1.3

# Average based on 1958-72 average

+ Snow water equivalent estimated from aerial stadia observation



## SNOW DATA TO MAY 1, 1978 - APPENDIX 6

**SNOW**

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
			Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches)	
NAME	Number	Elevation				Last Year	Average $\frac{\#}{\#}$

LEWIS RIVER (Cont.)

Council Pass +	21C18a	4200	4/25	50	23.0	13.5	38.8
Cultus Creek	21C12	4000	4/25	87	39.9	18.3	48.9
Divide Meadow +	21C29a	5600	4/25	106	49.8	21.6	65.5
Grand Meadow	21C25	3500	4/25	11	3.9	0.0	22.4
Lone Pine Shelter	21C26	3800	4/25	58	23.1	15.9	46.3
Marble Mountain +	22C05a	3200	4/25	10	4.9	4.9	33.2
New Muddy River	22C06	2000	4/25	0	0.0	0.0	0.8
Old Man Pass	21D19	3100	4/25	0	0.0	0.0	12.6
Plains of Abraham +	22C01a	4400	4/25	156	76.4	32.9	76.9
Smith Creek Road	22C04	2100	4/25	0	0.0	0.0	5.3
Spencer Meadow +	21C20a	3400	4/25	3	0.9	5.4	16.1
Surprise Lakes	21C13A	4250	4/25	78	35.3	13.2	52.9
Table Mountain +	21C24a	4200	4/25	82	36.9	16.2	40.3
Timbered Peak +	21D18a	3000	4/25	0	0.0	1.8	9.9

COWLITZ RIVER

Cayuse Pass	21C06	5300	5/2	155	70.9	43.4	-
Plains of Abraham +	22C01a	4400	4/25	156	76.4	32.9	76.9
White Pass (E. Side)	21C28	4500	4/13	38	16.9	6.3	26.0
			4/27	37	16.5	0.0	25.9

PUGET SOUND DRAINAGEWHITE RIVER

Cayuse Pass	21C06	5300	5/2	155	70.9	43.4	-
Corral Pass	21B13	6000	4/28	71	33.5	15.6	-
Morse Lake	21C17	5400	4/28	103	51.2	18.0	65.1

GREEN RIVER

Cougar Mountain SP	21B42SP	3200	5/1	0	0.0	-	-
Snowshoe Butte SP	21B43SP	5000	5/1	85	40.2	21.1	-
Stampede Pass SP	21B10	3860	4/13	55	28.4	12.0	43.4
			4/27	48	25.2	6.9	43.4

SNOQUALMIE RIVER

Olallie Meadows	21B02	3625	4/12	51	23.4	20.2	48.4
			5/1	41	20.9	15.9	48.6

SKYKOMISH RIVER

Stevens Pass	21B01	4070	4/12	94	43.3	25.6	55.2
			4/27	92	45.5	22.9	55.8
Stevens Pass Sand Shed	21B45	3700	4/12	60	28.7	12.2	-
			4/27	51	25.2	7.6	-

# Average based on 1958-72 average

+ Snow water equivalent estimated from aerial stadia observation.

## SNOW DATA TO MAY 1, 1978 - APPENDIX 7

## SNOW

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
			Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches)	
NAME	Number	Elevation				Last Year	Average #

SKAGIT RIVER

Beaver Creek Trail	21A04	2200	4/25	0	0.0	0.0	4.8
Beaver Pass	21A01	3680	4/25	39	17.2	6.6	34.0
Brown Top +	21A28a	6000	4/25	109	50.9	31.0	-
Devils Park	20A04A	5900	4/25	96	45.4	22.1	49.5
Freezeout Cr. Trail	20A01	3500	4/25	4.3	1.7	0.4	8.2
Freezeout Meadows New	20A38	5000	4/25	55	24.5	14.4	31.0
Granite Creek	21A29	3500	4/25	12	5.1	2.4	-
Harts Pass	20A05A	6500	4/25	115	56.1	21.8	50.7
Klesilkwa	35B-Can	3700	5/1	0	0.0	0.0	10.2*
Meadow Cabins	20A08	1900	4/25	0	0.0	0.0	1.3
New Hozomeen Lake	21A30	2800	4/25	0	0.0	0.0	-
New Tashme	26A-Can	2500	4/25	0	0.0	0.0	4.7*
Quartette Lake	34-Can	4000	4/26	20	9.1	4.1	11.6*
Rainy Pass	20A09	4780	4/25	93	46.8	21.8	44.3
Thunder Basin	20A07	4200	4/25	45	18.9	10.5	25.5

BAKER RIVER

Baker Pass +	21A27a	4900	5/1	Marker Missing	45.4	-	-
Dock Butte	21A11A	3800	4/26	96	46.7	35.0	77.4
Easy Pass	21A07A	5200	4/26	181	85.8	42.2	93.3
Jasper Pass	21A06A	5400	4/25	172	79.8	48.9	102.7
Komo Kulshan	21A17	800	4/26	0	0.0	0.0	0.7
Marten Lake	21A09A	3600	4/27	112	52.8	43.7	83.8
Mount Blum +	21A18a	5800	4/26	148	69.6	40.3	-
Panorama New	21A26	4300	4/15	107	52.2	36.3	-
			4/30	89	44.3	35.2	-
Rocky Creek	21A12A	2100	4/26	0	0.0	8.8	22.6
Schreibers Meadow	21A10A	3400	4/26	80	37.0	32.4	67.5
S. F. Thunder Creek	21A14A	2200	4/26	0	0.0	0.0	1.1
Sulphur Creek	21A13	1600	4/26	0	0.0	0.0	6.4
Three Mile Creek	21A15	1600	4/26	0	0.0	0.0	0.0
Watson Lakes	21A08A	4500	4/26	107	50.8	35.7	76.9

NOOKSACK RIVER

Panorama New	21A26	4300	4/15	107	52.2	36.3	-
			4/30	89	44.3	35.2	-

# Average based on 1958-72 average

\* Average for years of record

+ Snow water equivalent estimated from aerial stadia observation

## SNOW DATA TO MAY 1, 1978 - APPENDIX 8

**SNOW**

DRAINAGE BASIN and/or SNOW COURSE			THIS YEAR			PAST RECORD	
			Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (inches)	
NAME	Number	Elevation				Last Year	Average $\frac{1}{2}$

O L Y M P I C P E N I N S U L ADUNGENESS RIVER

Deer Park	23B04	5200	4/28	30	12.2	7.8	24.2
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MORSE CREEK

Cox Valley	23B14	4500	4/26	71	30.5	16.5	-
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ELWHA RIVER

Hurricane	23B03	4500	4/26	31	13.2	8.5	26.9
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# Agencies Assisting with Snow Surveys

## GOVERNMENT AGENCIES

### Canada:

Ministry of the Environment, Water  
Investigations Branch, Victoria, British Columbia

### States:

Washington State Department of Ecology  
Washington State Department of Natural Resources

### Federal:

Department of the Army  
Corps of Engineers  
U. S. Department of Agriculture  
Forest Service  
U. S. Department of Commerce  
NOAA, National Weather Service  
U. S. Department of the Interior  
Bonneville Power Administration  
Bureau of Reclamation  
Geological Survey  
National Park Service

## PUBLIC AND PRIVATE UTILITIES

Chelan County P.U.D.  
Pacific Power and Light Company  
Puget Sound Power and Light Company  
Washington Water Power Company

## OTHER PUBLIC AGENCIES

Okanogan Irrigation District  
Wenatchee Heights Irrigation District

## MUNICIPALITIES

City of Tacoma  
City of Seattle

*Other organizations and individuals furnish valuable information for snow survey reports. Their cooperation is gratefully acknowledged.*

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